

VITAMIN VALUES OF FOODS

A COMPILATION

A summary of the vitamin A, thiamin, ascorbic acid, vitamin D,
and ribaflavin values of foods in terms of International Units
or absolute weights of these vitamins, as recorded in the
literature through December 1940

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INTRODUCTION

This book summarizes the available data on the vitamin content of foods in relation to variety of plant or breed of animal, method of cultivation or feeding practice, place of production or source of material, method of cooking, processing, storage, variations in degree of maturity, and method of analysis, insofar as such information could be obtained from original published reports. Methods of analyses for several of the recognized vitamins have not as yet been established, although very promising methods are gradually being developed. For the present, potencies in the case of some of the vitamins cannot be expressed in terms of their absolute weights in foods nor have international standards been adopted for them. In view of these circumstances, it was decided to include in this compilation only the recorded values for the vitamin A, thiamin, ascorbic acid, vitamin D, and riboflavin contents of foods.

The tabulated vitamin values include only those values that were determined in terms of absolute weights of the vitamins or directly in terms of International Units. The vitamin A values of foods are derived from vitamin A per se and from vitamin-A-active carotenoids. In this tabulation, all vitamin A values have been expressed in terms of International Units and no distinctions have been made with regard to various vitamin-A-active compounds. When vitamin A values were reported in terms of milligrams of vitamin A, the data were converted into International Units on the basis that 1 International Unit was equivalent to 0.3 microgram of vitamin A. When values for the carotene content of foods were reported, these values were converted into International Units of vitamin A value on the basis that 1 International Unit of vitamin A value was equivalent to 0.6 microgram of beta carotene or to 1.2 micrograms of alpha carotene. Analyses of thiamin recorded in terms of International Units were converted into micrograms of thiamin by multiplying the former values by 3. Values for ascorbic acid recorded in terms of International Units (1 International Unit=0.05 mg. of ascorbic acid) were recalculated in terms of milligrams by dividing the International Unit values by 20 in accordance with the generally accepted procedure. Vitamin values recorded only in graphs were not included because of the inaccuracies inherent in ascertaining the precise values.

The following list of periodicals from the date of establishment of the latest international standards for vitamins through December 1940 were reviewed for data on the vitamin content of food.

American Journal of Physiology.	Journal of the American Dietetic Association.
American Journal of Public Health.	Journal of the American Medical Association.
The Analyst.	Journal of the Association of Official Agricultural Chemists.
Berichte der Deutschen Chemischen Gesellschaft.	Journal of Biological Chemistry.
Biochemical Journal.	Journal of Dairy Science.
Biochemische Zeitschrift.	Journal of Home Economics.
British Medical Journal.	Journal of Nutrition.
Cereal Chemistry.	Journal of Pediatrics.
Chemical Education.	Journal (Communications and Transactions) of the Society of Chemistry and Industry.
Die Ernährung.	The Lancet.
Experiment Station Bulletins.	Nature.
Food Research.	Poultry Science.
Helvetica Chemica Acta.	Proceedings of the American Society for Horticultural Science.
Hoppe-Seyler's Zeitschrift für Physiologische Chemie.	Proceedings of the Society for Experimental Biology and Medicine.
Indian Journal of Medical Research.	Science.
Industrial and Engineering Chemistry: Analytical Edition.	Zeitschrift für Vitaminforschung.
Industrial Edition.	
Journal of Agricultural Research.	
Journal of the American Chemical Society	

A few issues of these periodicals were not available to the authors because certain foreign periodicals for the year 1940 were not received. Data from a few issues of other periodicals were included as they came to the attention of one or another of the authors or as a result of search through chemical and nutrition abstracts. A few unpublished data were also included when made available to the authors through the courtesy of certain investigators or through analyses made in the nutrition laboratories of the Bureau of Home Economics. The sources of all unpublished data are given in the footnotes to the table of vitamin values.

EXPLANATION OF THE TABLE

CLASSIFICATION OF FOOD ITEMS

The first column of the table contains an alphabetized classification of the foods for which some one or more vitamin values were available. Subheadings, such as "dried" or "canned," are included under various foods, whenever there were sufficient data to warrant such a subclassification. The subclassification, various parts, refers, in most instances, to various parts of a single sample of a given food item. The authors are greatly indebted to several specialists on the staff of the Bureau of Plant Industry for certain classifications of plant foods, notably those for beans, cabbage, cereals, citrus fruits, lettuce, peppers, and tomatoes.

DESCRIPTION OF SAMPLES

In the second column of the table the authors have endeavored to summarize briefly the pertinent information important for identification of the samples analyzed by the investigators. This information was gathered from the original published reports.

When the variety of a fruit or vegetable was known, data on such

samples preceded (in the order of listing under any given food item) the data on the less well-defined samples. The specified varieties under each classification of the food items in column 1 are recorded alphabetically. In the case of animal foods the breed of animal was given preference in the order of listing the special attributes of samples, and under each item designations of breeds were alphabetized.

Insofar as possible the source of the sample analyzed by the investigator and the general method of analysis also have been recorded under the heading "Description of Samples." In a few cases, when the source of the samples analyzed was not specifically stated in the original published reports but the compilers have been reasonably certain of the source, they have indicated this fact by enclosing in brackets the word or words referring to the source. Because of space limitations, no attempt has been made to indicate minor variations in the methods of analysis and the reader is referred to the specific literature, cited in the last column of the table, for further information on this subject.

LISTINGS OF VITAMIN VALUES

Each of the main columns—headed Vitamin A value, Thiamin, Ascorbic acid, Vitamin D, and Riboflavin, respectively, is divided into two columns, designated as (a) and (b) preceded by the number corresponding to that of the main columns. Data in column (a) under each vitamin heading were arranged so that it would be possible by simple and rapid inspection to gain as clear an impression as possible of the variations in vitamin values of the edible portions of the classified items as listed in column 1. For example, the range of ascorbic acid values reported for apples, irrespective of variety and as purchased on the market or taken from the tree, is 0 to 23.4 milligrams per 100 grams of edible portion of apple. (See column 5a.)

Any figures printed in italics in the (a) columns under the five vitamin headings are not representative of values for food items as foods are generally produced or marketed. For the most part italicized figures represent data on underdeveloped or overdeveloped forms of plant food or on diseased samples. In scanning the data in the (a) columns with reference to some particular food item, then, the reader should exclude from his evaluation of vitamin values of foods as they are produced or marketed, all values recorded in italics. References to the corresponding description of sample will, in any given case, indicate why a figure has been italicized and therefore excluded from the category of foods as generally produced or marketed for human consumption.

From many published reports it was obvious that the food samples analyzed were not strictly fresh in the sense that they were analyzed immediately after production or harvesting, although the investigators did not mention any specific condition or time of storage. However, it was clear in the case of all data recorded in the column (a) under each vitamin heading that the investigators considered the samples as edible or marketable products, unless the description indicates otherwise.

In the case of potatoes the ascorbic acid values were, in general, observed to undergo marked changes on storage. In view of the fact that so many investigators neglected to mention whether or not storage was involved, data on both freshly harvested and stored samples of potatoes were included in column (a).

The figures in the respective (b) columns under the five vitamin headings represent values which in some manner reflect a condition not inherent in foods as they are designated in column 1. The variant in each instance is specified in the description of sample given in column 2. The values shown in these columns in boldface type represent matched sampling with those in boldface type immediately preceding in the (a) column. For example, the ascorbic acid value of fresh amaranth leaves, shown in the table in boldface type in the (a) column under the heading of ascorbic acid is 112.1 milligrams per 100 grams of fresh sample. After storage for 24 hours the ascorbic acid value of samples of the same lot of leaves was 59.9 milligrams per 100 grams of leaves. After storage for 4 days the ascorbic acid value of the leaves was further reduced to 5.5 milligrams per 100 grams of leaves.

Boldface type has also been used to denote matched samples when values are recorded consecutively in the (a) or (b) columns under one general description reported by one investigator. This situation appears for the first time in the table in connection with data recorded on the thiamin values for white wheat bread. In this case the crust, the portion directly under the crust, the center portion, and the whole slices of toasted bread represent carefully matched samples. The thiamin values of 100, 120, 120, and 110 micrograms, respectively, per 100 grams of dried product indicate both absolute and relative values for different portions of the toasted slices as compared with the toasted whole slice.

When any investigator's data have been listed to show what happens to the vitamin values of the fresh sample after some subsequent processing, such as dehydrating or canning, the data for the processed product have not been repeated under any subclassification denoting processing. For example, under the item, apple, data on Northern Spy apples grown in New York include data on the ascorbic acid value of the fresh sample as well as matched samples made into applesauce. The ascorbic acid value for applesauce made from Northern Spy apples is not repeated under the separate classification of applesauce.

In setting up the material under description of sample the authors of this bulletin have endeavored to present the work of each investigator as closely in accord as possible with the purpose and objective of the investigator. Data from the same report might deal with such diverse objectives as showing how degrees of maturity affected the vitamin value of apples and how dehydration of apples affected their vitamin value. Even though the samples used for these two studies might have been of the same variety and from the same source and analyzed by the same method, it was hardly likely that the samples could have been matched. In such cases the authors of this bulletin have endeavored to be very careful not to give the impression that the samples used in the two studies were necessarily related or matched. Appropriate spacing or repetition of the more general aspects of sample identification was frequently used to achieve this end.

COLUMN OF REFERENCES

The last column (column 8) in the table carries the reference numbers to the literature citations, alphabetized by authors, corresponding to the data given in the table.

Vitamin values per 100 grams of edible portions of foods—Continued

Item (1)	Description of sample (2)	Vitamin A value		Thiamin (vitamin B ₁)		Ascorbic acid (vitamin C)		Vitamin D		Riboflavin		Refer- ences (8)
		(3a)	(3b)	(4a)	(4b)	(5a)	(5b)	(6a)	(6b)	(7a)	(7b)	
Apple—Continued.	Northern Spy; New York; dye titration—Con- 3 hours after picking and quartered— Pared and quartered, made into unstrained apple sauce, baked in covered baking dish— Unpared, baked in uncovered baking dish— Pared, baked in covered baking dish— Pared, made into pie.	I. U.	I. U.	Mcg.	Mcg.	Mg.	Mg.	I. U.	I. U.	Mcg.	Mcg.	48
	Pured; Altenburg, Germany; dye titration:											
	Golden Wonder variety											
	Boskoop variety											
	Potts Seedling (England); thiochrome method											
	Golden Wonder variety; thiochrome method			57								144
	Rome Beauty; average and range; Washington; dye titration:			57								
	Trees grown on irrigation plot receiving 30 inches of water.											
	Trees grown on irrigation plot receiving 60 inches of water.											
	Staygreen variety; A; rat-growth method.											
	Warner King (England); thiochrome method.			<27								258
	Winesap; average and range, 6 samples; Washing- ton; dye titration:			57								
	Trees grown on Cashmere sandy loam soil.											
	Trees grown on Cashmere sandy loam soil; trees harvested for 3 years; nitrogen, phosphorus, and potassium for 3 years; Washington; dye titration:											
	Winesap; average and range; Washington; dye titration:											
	Trees grown on irrigation plot receiving 30 acres inches of water.											268
	Trees grown on irrigation plot receiving 60 acres inches of water.											
	Winter Banana; average and range; Washington; dye titration:											
	Fish and peel.											
	Apples from same trees harvested 2 weeks later.											

Vitamin values per 100 grams of edible portions of foods—Continued

Item (1)	Description of sample (2)	Vitamin A value (3a) (3b)		Thiamin (Vitamin B ₁) (4a) (4b)	Ascorbic acid (Vitamin C) (5a) (5b)		Vitamin D (6a) (6b)	Riboflavin (7a) (7b)	Refer- ences (8)
Asparagus—Con.									
Canned.....	Martha Washington; New Jersey; rat-growth method; processed 23 minutes at 114.5° C. in No. 2 cans. Liquid from above can. Canned in the range and range, 3 samples; U. S. A. dye titration. Canned in tin.	I. U. (3a)	I. U. (3b)	Meg. (4a)	Meg. (5a)	Meg. (5b)	I. U. (6a)	Meg. (7a)	72
	Canned in glass.			98	6.8 2.9 1.6-10.9 13.44			Meg. (7b)	159
	Cooled or canned, average and range; England; dye titration.								202
	Martha Washington; blanched; U. S. A.; rat-growth method.			153					72
	Commercial sample, commercially frozen; spectrographic method.	1 700			18.32				82
	Commercial sample, cut Apr. 28-May 16; U. S. A.; Overmature, cut May 26-June 3; U. S. A.; dye titration.				9-15				82
	Commercial sample, U. S. A.; fluorimetric method.							129	126
Various parts.....	Very young; England; dye titration. Type uncolored. White stem.				100 0				201
	Tip, short, faint purple.				35				
	White stem; dye titration.				27				
	Yellow stem; dye titration.				111				201
	Tip, deep purple, no green.				29				
	White stem.								
	Yellow stem, showing green tip; England; dye titration.				130				201
	Tip.				62				
	Green stem.				20				
	White stem.								
	Full grown for cutting, slender shoot; England; dye titration.				121				201
	Green stem.				17				
	White stem.								

Plant	Country	Method	Yield, %	Notes
Alcornoque	Spain	Full grown for cutting, thick shoot; England; dye from stems	201	
		Twigs	27	
		Green stem	27	
		Wren stem	15	
		Fresh tips only, average, 3 batches; England; dye titration	57.9	
Alcornoque	Spain	Fresh tips only, average, 3 batches; England; dye titration	57.9	
		Twigs	34.1-65.4	
		Wren stem	8.0-25.6	
		Middle, green-stem portions	8.0-25.6	
		White-stem portions	8.0-25.6	
Alcornoque	Spain	Medium yellow; Florida; rat-growth method	128	
		Java; rat-growth method	50-60	
		Wren stem; rat-growth method	102	
		Twigs; rat-growth method	102	
		[U. S. A.]; dye titration	102	
Alcornoque	Spain	Quercus; compounds of 4 lots; Washington, D. C.; method; rat-growth method	449	
		Raw, 71 percent viable fat	430	
		Fried, crisp	5728	
		Strained with kani; thiocrome method	264	
		Raw	1860	
Alcornoque	Spain	Fried	1840	
		Fried	1,940	
		Fried; bradycarthia method	1,940	
		Young sprouts; Java; rat-growth method	19-25	
		Young sprouts; Java; rat-growth method	19-25	
Bambusa	India	Ceylonish; freshly picked; western Australia; dye titration	123	
		Golden Gros; freshly picked; western Australia; dye titration	123	
		Gros; normally ripened; dye titration	123	
		Columbia; average and range, 25 samples	123	
		Costa Rica; average and range, 58 samples	123	
Bambusa	India	Ecuador; average and range, 25 samples	123	
		Honduras; average and range, 30 samples	123	
		Java; average and range, 25 samples	123	
		Java; average and range, 25 samples	123	
		Java; average and range, 25 samples	123	

Table 1. Isolated bacteriostatic substances or included carotene analyses.

Internal Unit values were calculated from Internal Unit values were calculated from

* Values on cooked- or processed-weight basis.
 † Values on raw-weight basis.
 ‡ Unpublished data, Bureau of Home Economics.

Vitamin values per 100 grams of edible portions of foods—Continued

Item (1)	Description of sample (2)	Vitamin A value		Thiamin (vitamin B ₁)		Ascorbic acid (vitamin C)		Vitamin D		Riboflavin (7a) (7b)	Refer- ences (8)
		(3a)	(3b)	(4a)	(4b)	(5a)	(5b)	(6a)	(6b)		
		I. U.	I. U.	Mg.	Mg.	Mg.	Mg.	I. U.	I. U.	Mg.	
Banana—Con.	Gros Michel; ripe; Columbian dye titration: Sliced; average and range, 4 samples. 20 minutes after slicing; average, 4 samples. 1 hour 20 minutes after slicing; average, 4 samples. 2 hours 40 minutes after slicing; average, 4 samples. 10 hours 40 minutes after slicing; average, 4 samples. 21 hours 20 minutes after slicing; average, 4 samples.					11.4 { 8.4-14.3	10.2 8.6				114
	Gros Michel; Costa Rica; dye titration: Peel green, pulp hard; average and range, 10 samples. Peel yellow and green; average and range, 10 samples. Peel yellow with green tip; average and range, 20 samples.					5.5 { 4.9-6.8					
	Gros Michel; Costa Rica; dye titration: Peel green, pulp hard; average and range, 10 samples. Peel yellow and green; average and range, 10 samples. Peel yellow with green tip; average and range, 20 samples.					5.8-6.3 { 5.8-6.3					
	Gros Michel; Costa Rica; dye titration: Peel green, pulp hard; average and range, 10 samples. Peel yellow and green; average and range, 10 samples. Peel yellow with green tip; average and range, 20 samples.					6.2-15.0 { 6.2-15.0					
	Gros Michel; Costa Rica; dye titration: Peel green, pulp hard; average and range, 10 samples. Peel yellow and green; average and range, 10 samples. Peel yellow with green tip; average and range, 20 samples.					5.0-13.2 { 5.0-13.2					114
	Gros Michel; Costa Rica; dye titration: Peel green, pulp hard; average and range, 10 samples. Peel yellow and green; average and range, 10 samples. Peel yellow with green tip; average and range, 20 samples.					8.9-14.3 { 8.9-14.3					
	Gros Michel; Costa Rica; dye titration: Peel green, pulp hard; average and range, 10 samples. Peel yellow and green; average and range, 10 samples. Peel yellow with green tip; average and range, 20 samples.					1.0-5.4 { 1.0-5.4					
	Gros Michel; Costa Rica; dye titration: Peel green, pulp hard; average and range, 10 samples. Peel yellow and green; average and range, 10 samples. Peel yellow with green tip; average and range, 20 samples.					9.5 { 9.5					
	Gros Michel; Costa Rica; dye titration: Peel green, pulp hard; average and range, 10 samples. Peel yellow and green; average and range, 10 samples. Peel yellow with green tip; average and range, 20 samples.					10.7 { 10.7					114
	Gros Michel; Costa Rica; dye titration: Peel green, pulp hard; average and range, 10 samples. Peel yellow and green; average and range, 10 samples. Peel yellow with green tip; average and range, 20 samples.					16.8 { 16.8					
	Gros Michel; Costa Rica; dye titration: Peel green, pulp hard; average and range, 10 samples. Peel yellow and green; average and range, 10 samples. Peel yellow with green tip; average and range, 20 samples.					17.8 { 17.8					
	Gros Michel; Costa Rica; dye titration: Peel green, pulp hard; average and range, 10 samples. Peel yellow and green; average and range, 10 samples. Peel yellow with green tip; average and range, 20 samples.					15.5 { 15.5					
	Pisang raja; Java; dye titration: Sautéed.					4.9 { 4.9					244
	Pisang Mas; Java; dye titration: Sautéed.					7.2 { 7.2					
	Pisang Ambon; Java; dye titration: Sautéed.					4.6 { 4.6					244

Vitamin values per 100 grams of edible portions of foods—Continued

Item (1)	Description of sample (2)	Vitamin A value		Thiamin (vitamin B ₁)		Ascorbic acid (vitamin C)		Vitamin D		Riboflavin		Refer- ences (8)
		(3a)	(3b)	(4a)	(4b)	(5a)	(5b)	(6a)	(6b)	(7a)	(7b)	
		I. U.	I. U.	Mg.	Mg.	Mg.	Mg.	I. U.	I. U.	Mg.	Mg.	
Barcelona nuts												
Bran												
Germ	.....			114								200
Flour	.....			4,200								11
Peared	.....											25
Plant	.....			116,000								7
Whole grain												
	Tbiodrome method											
	[England]; bradyseuda method											
	Cooked product; bichrome method											
	Fermentation method; 6-16 inches high, U. S. A.,											
	colorimetric method											
	Fermentation method											
	Alfalfa obtained Kansas											
	Club Marlett; obtained Kansas											
	"p" North Dakota; obtained Chicago											
	"p" Minnesota; obtained Chicago											
	"p" Wisconsin; obtained Chicago											
	Flynn; obtained Kansas											
	Franklin (Odey); obtained Kansas											
	Franklin (Odey); obtained Kansas											
	Franklin (Odey); obtained Kansas											
	Improved Manchuria; obtained Minnesota											
	Lipo; obtained Kansas											
	Minnesota; obtained Wisconsin											
	Wisconsin barley (Wisconsin 38); obtained											
	Wisconsin											
	No. 1 Hanna (2-row); Oregon; obtained Chi-											
	cago											
	No. 3 Hanna (2-row); Oregon; obtained Chi-											
	cago											
	No. 1 Michigan; obtained Chicago											
	No. 2 Michigan; obtained Chicago											
	No. 3 Michigan; obtained Chicago											
	No. 1 Minnesota; obtained Chicago											
	No. 2 Minnesota; obtained Chicago											
	No. 1 North Dakota; obtained Chicago											
	No. 2 North Dakota; obtained Chicago											
	No. 1 North Dakota; obtained Chicago											
	No. 2 Wisconsin; obtained Chicago											
	No. 1 Wisconsin; obtained Chicago											
	No. 2 Wisconsin; obtained Chicago											
	Odey; obtained Kansas											
	Red river valley; Minnesota; obtained Chi-											
	cago											
	Spartan; obtained Michigan											
	Shawnee; obtained Kansas											
	Shawnee; obtained Kansas											
	Trebi; obtained Kansas											

[illegible]^a Values on cooked or processed weight basis.

Values on raw-weight basis.

This figure may be significant.

... are significantly affected by method of sampling because of oxidative enzymes.

Vitamin values per 100 grams of edible portions of foods—Continued

Item (1)	Description of sample (2)	Vitamin A value		Vitamin B ₁ (vitamin B ₁)		Ascorbic acid (vitamin C)		Vitamin D		Riboflavin (7a) (7b)	Refer- ences (8)
		(3a)	(3b)	(4a)	(4b)	(5a)	(5b)	(6a)	(6b)		
Bean—Continued. Green snap pods— Continued.	Refugee, New York; dye titration: Fresh	I.	U.	Meq.	Meq.	Me.	Me.	I.	U.	Meq.	170
	Stored 1 day at 21–25° C.					17	7.1				
	Stored 6 days at 21–25° C.						7.1				
	Stored 1 day at 1–3° C.						18.3				
	Stored 6 days at 1–3° C.						8.8				
	Refugee, New York; dye titration: Fresh					17	16.1				170
	Stored 1 day at 1–3° C.						14.4				
	Liquid (17 minutes (dome) oven)										
	Refugee, New York; dye titration: Immature					22					170
	Overmature					19					
	Tendergreen, grown on Ontario clay loam; New York; dye titration					24					170
	Tendergreen, grown on Ontario clay loam; New York; dye titration					24					
	Tendergreen, New York; dye titration: Immature					24					170
	Overmature					24					
	Tendergreen, garden fresh; Ohio; dye titration. U.S. No. 5; grown on Ontario clay loam; New York; dye titration					45.3					34 176
	U.S. No. 5; New York; dye titration: Grown on clay loam					19					
	Grown on muck soil					13					170
	White Pass on muck soil; Ontario clay loam; New York; dye titration					22					
	Yearly average; Boston wholesale market; dye titration										82
	Fresh					17.6					
	Stored 24 hours at 21° C.						18				82
	Stored 24 hours at 21° C.						18				
	Green; Boston market; grapho method										200
	Fresh; stringless; England; dye titration: Cooked, liquid discarded					9.0					
	2–5 days after commercial canning, liquid dis- carded						14.1				200
	Liquid from cooked sample						2.5				
	Liquid from canned sample						2.5				200
							2.5				

Vitamin values per 100 grams of edible portions of foods—Continued

Item	Description of sample	Vitamin A value		Thiamin (vitamin B ₁)		Ascorbic acid (vitamin C)		Vitamin D		Riboflavin		Reference (8)
		(3a)	(3b)	(4a)	(4b)	(5a)	(5b)	(6a)	(6b)	(7a)	(7b)	
(1)		I. U.	I. U.	Mg.	Mg.	Mg.	Mg.	I. U.	I. U.	Mg.	Mg.	
Beet—Continued. K May—Con. Wax—Con.	Kidney Wax; New York; dye titration; Fresh											
	Stored 1 day at 21°-25° C.						7.3					
	Stored 6 days at 21°-25° C.						2.4					
	Stored 1 day at 1°-3° C.						11.9					170
	Stored 6 days at 1°-3° C.						6.3					
	Kidney Wax; New York; dye titration; Mature											
	Stored 1 day at 1°-3° C.						21					170
	Stored 6 days at 1°-3° C.						18					
	Yellow wax; 2 determinations on same sample; U. S. A.; dye titration method						26					126
	Yellow wax; market sample; U. S. A.; dye titration			87			25.6			101		20
Lime: Immature	Burpee (bush); New York; dye titration; 1/2-1 1/2 inch diameter											
	Stored 1 day at 0° C.						40					
	Stored 2 days at 0° C.						40					
	Stored 4 days at 0° C.						40					
	Stored 6 days at 0° C.						40					263
	Stored 8 days at 0° C.						20					
	Burpee (bush); 1/2-1 1/2 inch diameter; New York; dye titration											
	Stored 3 days at 0° C.						18					
	Stored 11 days at 0° C.						31					263
	Stored 2 days at 22° C.						25					
Unshelled:	Burpee (bush); 1/2-1 1/2 inch diameter; New York; dye titration; Shaded						16					
	Stored 2 days at 0° C.											
	Stored 4 days at 0° C.											
	Stored 6 days at 0° C.											
	Stored 8 days at 0° C.											
	Stored 10 days at 0° C.											
	Stored 11 days at 0° C.											
	Unshelled:											
	Stored 2 days at 0° C.						40					263
	Stored 4 days at 0° C.						34					
	Stored 11 days at 0° C.						27					

[illegible]

International Unit values were calculated from carotene analyses or included carotene analyses.

Vitamin values per 100 grams of edible portions of foods--Continued

Item	Description of sample	Vitamin A value	Thiamin (vitamin B ₁)	Ascorbic acid (vitamin C)	Vitamin D	Riboflavin	References
(1)	(2)	(3a) (3b)	(4a) (4b)	(5a) (5b)	(6a) (6b)	(7a) (7b)	(8)
Bean, canned—Can. Kidney—Canned—Pods —Continued.	Refugee, overmature, commercially canned in No. 6 can, New York; dye titration:						
	Seeds and pods.....						
	Pods only.....						
	Seeds only.....						
	Refugee, immature, commercially canned in No. 2 can, New York; dye titration:						
	Seeds and pods.....						
	Pods only.....						
	Seeds only.....						
	Refugee, mature, commercially canned in No. 4 can, New York; dye titration:						
	Seeds and pods.....						
	Pods only.....						
	Seeds and pods.....						
	Pods only.....						
	Seeds only.....						
	Slashed, liquid discarded; England; dye titration:						
	2 days after commercial canning.....						
	Stored 17 weeks at room temperature.....						
	Whole, liquid discarded; England; dye titration:						
	2 days after commercial canning.....						
	Stored 17 weeks at room temperature.....						
	France; blanchet and hummer methods, respectively.....						
	Commercially canned, stored 3 months; Montana; dye titration:						
	Seeds and pods.....						
	Refugee, immature.....						
	Rebated to minutes.....						
	Liquid from canned sample.....						
	Commercially canned, stored 6 months; rebated to minutes.....						
	U. S. A.; dye titration.....						
	Commercial sample, strained; U. S. A.; rat-growth method.....						
	Canned in 1932.....						
	Canned in 1933.....	900					
	Canned in 1934.....	1,200					
	Commercial sample, strained; U. S. A.; dye titration.....		31.5				

Canned in 1933.....				4.6 3.6					108
Canned in 1934.....				1.8					
Average commercial samples; strained; U. S. A., dry titration.....				4.6 2.4					190
In tin containers.....				4.3 1.2-1.1					190
Commercial containers.....				4 2.9					
In tin containers; average and range, 4 samples.....									
Henderson Bush; bleached and canned; New Zealand; rat-growth method.....	36								72
Commercial samples; average and range, 4 samples; U. S. A.; dry titration.....				4.8 1.2-7 2.6					190
In tin containers.....									
In glass containers.....									
Bawal; India; furometric method.....									195
Bawal; sprouted; India; dye titration.....									191
Bawal; India; furometric method.....					14.2			Trace	291
Bawal; India; dye titration.....								90	
Dry seeds.....									
Sprouted.....				2.5				7.5	1
White; India; dye titration.....									
Sprouted.....				3.0				7.5	1
Blue seed; Michigan; rat-growth method.....									
Grown on light-to-medium sandy loam.....	370								142
Small California pea beans; U. S. A.; rat-growth method.....	810								
Raw.....									
Rome baked 8 hours at 300° F.....	619			1.139 1.245					(*)
Cranberry; Michigan; rat-growth method.....									
Grown on light-to-medium sandy loam.....	330								142
Grown on heavy sandy loam.....	330								
Grown on light-to-medium sandy loam.....	610								
Grown on heavy sandy loam.....	480								142
Mildew; Michigan; light-to-medium sandy loam; rat-growth method.....	600								142
Melrose; Michigan; rat-growth method.....	0								29

Values on cooked- or processed-weight basis. Values on raw-weight basis.

* Unpublished data, Bureau of Home Economics.

Vitamin values per 100 grams of edible portions of foods—Continued

Item	Description of sample	Vitamin A value		Thiamin (vitamin B ₁)	Ascorbic acid (vitamin C)		Vitamin D		Riboflavin	Refer- ences
(1)	(2)	(3a)	(3b)	(4a)	(4b)	(5a)	(5b)	(6a)	(7a)	(8)
Broccoli—Continued Various parts—Con.	Italian Early Calabrese; fresh; July; New York; dye titration: Buds.	I. U.	I. U.	Mg.	Mg.	Mg.	I. U.	I. U.	Mg.	290
	Italian Early Calabrese; autumn; New York; dye titration; freshly harvested.				14					
	Buds; stored 2 weeks at 1-3° C. after harvesting.				104					
	Italian Green Sprouting; fresh; July; New York; dye titration: Buds.				171	14				290
	Italian Green Sprouting; autumn; New York; dye titration: Buds; freshly harvested.									
	Buds; stored 2 weeks at 1-3° C. after harvesting.				160					290
	Propagane; fresh; July; New York; dye titration: Buds.				199	168				290
	Propagane; autumn; New York; dye titration: Buds; freshly harvested.					88				
	Buds; stored 2 weeks at 1-3° C. after harvesting.				133					290
	Fresh; average, 4 varieties; July; New York; dye titration: Stems.				180	148				290
Broccoli—Continued Various parts—Con.	Average, 4 varieties; autumn; New York; dye titration: Buds; freshly harvested.				146					290
	Buds; stored 2 weeks at 1-3° C. after harvesting.				109					
	Market sample, cooked; U. S. A.; rat-growth method: Buds.				184	144				290
	Commercial sample, frozen, June-November; dye titration:				3,290					20
					4,360					

Brussels sprouts	Buds.....					57-124	82
	Stems.....					110-140	
	Range, 8 batches; England; dye titration:						
	Fresh.....						
	Cooked, liquid discarded.....						
	6 days after commercial canning.....	98-115				238.5-245.5	200
	Liquid from cooked samples.....					238.8-252.6	
	Liquid from canned samples.....					18.2-22.6	
	Average, range, 10 batches, fresh; England; dye titration.....	128.2				24.8-25.5	200
	{ 90-118						
	England; breadyardia method.....	180					11
	Germany; dye titration:						
	Cooked in water, liquid included.....	78.9				477.3	161
	Cooked in water, liquid discarded.....					482.8	
	Stocked.....					486.9	211
	Indole dye titration.....	71.8					
	Market sample; U. S. A.; dye titration:						
	Autumn season.....	184.6					34
	Winter season.....	119					28
	U. S. A.; rat-growth method.....	171					202
	Cooked; average and range England; dye titration.....					9.22	
	{ 10-14						
Canned	Commercially canned, liquid discarded; England; dye titration.....						
	Unleached cans:						
	6 days after canning.....	49.1				441.9	200
	After 17-week storage at room temperature.....						
	Unleached cans:						
	6 days after canning.....	44.1				447.3	
	After 17-week storage at room temperature.....						
Frozen	Commercial sample; Boston market; spectrophotometric method.....	12,200					82
	Commercial sample, frozen, cooked; rat-growth method.....	460					29
Various parts	Frozen; England; dye titration:						
	Outer leaves of sprout.....	139.7					
	Inner leaves, same sprout.....	137.6					
	Heart of same sprout.....	140.6					
	Stem of same sprout.....	127.9					200
Wheat	Washington, D. C., market; rat-growth method.....	740					(c)
Flour							

! International unit values were calculated from carotene analyses or included carotene analyses.

* Values on cooked or processed-weight basis.

† Values on fresh-weight basis.

* Unpublished data, Bureau of Home Economics.

Item	Description of sample	Vitamin A value	Thiamin (vitamin B ₁)	Ascorbic acid (vitamin C)	Vitamin D	Riboflavin	Water-soluble					
(1)	(2)	(3a) I. U.	(3b) I. U.	(4a) Mgs.	(4b) Mgs.	(5a) Mgs.	(5b) Mgs.	(6a) Mgs.	(6b) Mgs.	(7a) Mgs.	(7b) Mgs.	(8) Mgs.
Buckwheat—Con. Whole grain.	Virginia; obtained Washington, D. C.; fermented; dried; milled; sifted; Japan.											
	Wheat; obtained Washington, D. C.; fermented; dried; milled; sifted; Japan.											
	Wheat; obtained Washington, D. C.; fermented; dried; milled; sifted; Japan.											
	Wheat; obtained Washington, D. C.; fermented; dried; milled; sifted; Japan.											
	Wheat; obtained Washington, D. C.; fermented; dried; milled; sifted; Japan.											
Buckwheat—Con. Whole grain.	Wheat; obtained Washington, D. C.; fermented; dried; milled; sifted; Japan.											
	Wheat; obtained Washington, D. C.; fermented; dried; milled; sifted; Japan.											
	Wheat; obtained Washington, D. C.; fermented; dried; milled; sifted; Japan.											
	Wheat; obtained Washington, D. C.; fermented; dried; milled; sifted; Japan.											
	Wheat; obtained Washington, D. C.; fermented; dried; milled; sifted; Japan.											
Butter, cows.	From Ayrshire cows; farm-produced; England; milk-growth and rat-curative methods, respectively; August 1933.	640	2,160									
	From Ayrshire cows; farm-produced; November 1933.	940-1,060	2,160									
	From Holstein cows on prairie hay and grain mixture for over 2 years; Kansas; spectrophotometric method.	1,142	1,142									
	From Holstein cows on alfalfa hay; sorgo silage and grain mixture through summer drought; Kansas; spectrophotometric method.	1,197	1,197									
	From Holstein cows on alfalfa hay; sorgo silage and grain mixture through summer drought; Kansas; spectrophotometric method.	1,193	1,193									
Butter, cows.	From Holstein cows on alfalfa hay; sorgo silage and grain mixture through summer drought; Kansas; spectrophotometric method.	1,197	1,197									
	From Holstein cows on alfalfa hay; sorgo silage and grain mixture through summer drought; Kansas; spectrophotometric method.	1,193	1,193									
	From Holstein cows on alfalfa hay; sorgo silage and grain mixture through summer drought; Kansas; spectrophotometric method.	1,197	1,197									
	From Holstein cows on alfalfa hay; sorgo silage and grain mixture through summer drought; Kansas; spectrophotometric method.	1,193	1,193									
	From Holstein cows on alfalfa hay; sorgo silage and grain mixture through summer drought; Kansas; spectrophotometric method.	1,197	1,197									
Butter, cows.	From Holstein cows on alfalfa hay; sorgo silage and grain mixture through summer drought; Kansas; spectrophotometric method.	1,197	1,197									
	From Holstein cows on alfalfa hay; sorgo silage and grain mixture through summer drought; Kansas; spectrophotometric method.	1,193	1,193									
	From Holstein cows on alfalfa hay; sorgo silage and grain mixture through summer drought; Kansas; spectrophotometric method.	1,197	1,197									
	From Holstein cows on alfalfa hay; sorgo silage and grain mixture through summer drought; Kansas; spectrophotometric method.	1,193	1,193									
	From Holstein cows on alfalfa hay; sorgo silage and grain mixture through summer drought; Kansas; spectrophotometric method.	1,197	1,197									
Butter, cows.	From Holstein cows on alfalfa hay; sorgo silage and grain mixture through summer drought; Kansas; spectrophotometric method.	1,197	1,197									
	From Holstein cows on alfalfa hay; sorgo silage and grain mixture through summer drought; Kansas; spectrophotometric method.	1,193	1,193									
	From Holstein cows on alfalfa hay; sorgo silage and grain mixture through summer drought; Kansas; spectrophotometric method.	1,197	1,197									
	From Holstein cows on alfalfa hay; sorgo silage and grain mixture through summer drought; Kansas; spectrophotometric method.	1,193	1,193									
	From Holstein cows on alfalfa hay; sorgo silage and grain mixture through summer drought; Kansas; spectrophotometric method.	1,197	1,197									
Butter, cows.	From Holstein cows on alfalfa hay; sorgo silage and grain mixture through summer drought; Kansas; spectrophotometric method.	1,197	1,197									
	From Holstein cows on alfalfa hay; sorgo silage and grain mixture through summer drought; Kansas; spectrophotometric method.	1,193	1,193									
	From Holstein cows on alfalfa hay; sorgo silage and grain mixture through summer drought; Kansas; spectrophotometric method.	1,197	1,197									
	From Holstein cows on alfalfa hay; sorgo silage and grain mixture through summer drought; Kansas; spectrophotometric method.	1,193	1,193									
	From Holstein cows on alfalfa hay; sorgo silage and grain mixture through summer drought; Kansas; spectrophotometric method.	1,197	1,197									
Butter, cows.	From Holstein cows on alfalfa hay; sorgo silage and grain mixture through summer drought; Kansas; spectrophotometric method.	1,197	1,197									
	From Holstein cows on alfalfa hay; sorgo silage and grain mixture through summer drought; Kansas; spectrophotometric method.	1,193	1,193									
	From Holstein cows on alfalfa hay; sorgo silage and grain mixture through summer drought; Kansas; spectrophotometric method.	1,197	1,197									
	From Holstein cows on alfalfa hay; sorgo silage and grain mixture through summer drought; Kansas; spectrophotometric method.	1,193	1,193									

Vitamin values per 100 grams of edible portions of foods—Continued

Item (1)	Description of sample (2)	Vitamin A value		Vitamin B ₁ (vitamin B ₁) (4a)	Thiamin (vitamin B ₁) (4b)	Ascorbic acid (vitamin C) (5a)	Vitamin D (5b)	Vitamin E (6a)	Riboflavin (7a)	Refer- ences (8)
		(3a)	(3b)	(4a)	(4b)	(5a)	(5b)	(6a)	(7a)	(8)
Butter, cow's—Con.	Creamery sample; Scotland: rat-growth and rat-curative methods, respectively: Cows milked: February–April 1936.....	1,330 1,330 2,300 2,400	I. U. I. U. I. U. I. U.	Meg. Meg. Meg. Meg.	Meg. Meg. Meg. Meg.	Meg. Meg. Meg. Meg.	Meg. Meg. Meg. Meg.	I. U. I. U. I. U. I. U.	Meg. Meg. Meg. Meg.	191
	Cows on pasture: May–September 1936.....	1,330 1,330 2,300 2,400	I. U. I. U. I. U. I. U.	Meg. Meg. Meg. Meg.	Meg. Meg. Meg. Meg.	Meg. Meg. Meg. Meg.	Meg. Meg. Meg. Meg.	I. U. I. U. I. U. I. U.	Meg. Meg. Meg. Meg.	191
	Creamery: mixed cows on grass May through September; mixed cows on grass May through February: Scotland: rat-growth method: Summer.....	2,730 1,380	I. U. I. U.	Meg. Meg.	Meg. Meg.	Meg. Meg.	Meg. Meg.	I. U. I. U.	Meg. Meg.	280
	Creamery: cows milked November–April on grass May–October; Scotland: rat-growth and rat-curative methods, respectively: February–April 1936.....	1,330 1,330 2,300 2,400	I. U. I. U. I. U. I. U.	Meg. Meg. Meg. Meg.	Meg. Meg. Meg. Meg.	Meg. Meg. Meg. Meg.	Meg. Meg. Meg. Meg.	I. U. I. U. I. U. I. U.	Meg. Meg. Meg. Meg.	280
	May–October 1936.....	1,330 1,330 2,300 2,400	I. U. I. U. I. U. I. U.	Meg. Meg. Meg. Meg.	Meg. Meg. Meg. Meg.	Meg. Meg. Meg. Meg.	Meg. Meg. Meg. Meg.	I. U. I. U. I. U. I. U.	Meg. Meg. Meg. Meg.	280
	November 1936–April 1937.....	1,330 1,330 2,300 2,400	I. U. I. U. I. U. I. U.	Meg. Meg. Meg. Meg.	Meg. Meg. Meg. Meg.	Meg. Meg. Meg. Meg.	Meg. Meg. Meg. Meg.	I. U. I. U. I. U. I. U.	Meg. Meg. Meg. Meg.	280
	May 1937.....	1,330 1,330 2,300 2,400	I. U. I. U. I. U. I. U.	Meg. Meg. Meg. Meg.	Meg. Meg. Meg. Meg.	Meg. Meg. Meg. Meg.	Meg. Meg. Meg. Meg.	I. U. I. U. I. U. I. U.	Meg. Meg. Meg. Meg.	280
	London market; Scotland: rat-growth and rat-curative methods, respectively: April 1936.....	1,020	I. U.	Meg.	Meg.	Meg.	Meg.	I. U.	Meg.	280
	May 1936: 2 samples.....	2,000 1,240	I. U. I. U.	Meg. Meg.	Meg. Meg.	Meg. Meg.	Meg. Meg.	I. U. I. U.	Meg. Meg.	280
	Creamery: Washington, D. C.: rat-growth method: Summer produced..... Winter produced..... Washington market; purchased in winter season: rat-growth method: U. S. A.: dye titration..... U. S. A.: rat-growth method.....	5,900 3,650 3,650 on 3,650	I. U. I. U. I. U. I. U.	Meg. Meg. Meg. Meg.	Meg. Meg. Meg. Meg.	Meg. Meg. Meg. Meg.	Meg. Meg. Meg. Meg.	I. U. I. U. I. U. I. U.	Meg. Meg. Meg. Meg.	28
Butterfat, cow's—	From Arabian cows on mixed ration; Wisconsin: spectrophotometric method: 1 day after parturition..... 7 days after parturition..... 30 days after parturition..... 6–100 days after parturition..... More than 100 days after parturition.....	1,271 1,300 1,300 1,300 1,300	I. U. I. U. I. U. I. U. I. U.	Meg. Meg. Meg. Meg. Meg.	Meg. Meg. Meg. Meg. Meg.	Meg. Meg. Meg. Meg. Meg.	Meg. Meg. Meg. Meg. Meg.	I. U. I. U. I. U. I. U. I. U.	Meg. Meg. Meg. Meg. Meg.	238

	140
1 day after parturition.....	1 19, 120
2 days after parturition.....	11,860
7 days after parturition.....	16,890
14 days after parturition.....	17,780
30 days after parturition.....	12,780
Average and range, 22 Holstein cows on alfalfa hay dry cornstalks, corn and cob meal, soybean silage; Wisconsin, spectrophoto-metric method.	{ 14,493 13,470- 5,070}
Average, 3 Holstein cows; Wisconsin; spectrophoto-metric method; bay, dry cornstalks, corn and cob meal, and soybean hay and pea-vine silage.	14,317
Average with pea-vine silage re-placed by alfalfa hay.	{ 12,590 13,560 14,060}
Average with pea-vine silage restored to ration. From Jersey cows; Washington; rat-growth method:	14,060
From 10 cows on winter ration of hay.....	16,600
From 10 cows on winter ration of silage.....	11,800
From 20 cows on winter ration of hay and silage.....	14,700
From 30 cows on pasture.....	10,500
From Jersey cows on milked ration; Wisconsin; growth method: 1 day after parturition.....	15,220
2 days after parturition.....	10,770
7 days after parturition.....	18,070
14 days after parturition.....	16,960
30 days after parturition.....	12,090
6-100 days after parturition.....	13,820
Milk less than 100 days after parturition.....	12,850
From Jersey cows; England; spectrographic method:	
Average value for 1 year.....	12,720
Winter asperies cows on ration of hay, kale, and food concentrates, October through March.....	12,350
Summer samples; cows on pasture; April through September.....	13,250
From Shorthorn cow sample from 2 cows;	
Cows on winter ration, kept indoors.....	27
Cows on summer ration, kept out of doors.....	88
Cows given fresh alfalfa during winter.....	13
Cows on pasture.....	47
	37
	238
	140

† International unit values were calculated from carotene analyses or included carotene analyses.

[illegible]

International Unit values were calculated from carotene analyses or included carotene analyses. † Values on cooked- or processed-weight basis. ‡ Values per 100 ml.

Vitamin values per 100 grams of edible portions of foods—Continued

[illegible]

Vitamin values per 100 grams of edible portions of foods—Continued

Item (1)	Description of sample (2)	Vitamin A value (3a) (3b)		Vitamin B ₁ (4a) (4b)		Ascorbic acid (vitamin C) (5a) (5b)		Vitamin D (6a) (6b)		Riboflavin (7a) (7b)		Refer- ences (8)
		I. U.	Mg.	I. U.	Mg.	Mg.	Mg.	I. U.	I. U.	Mg.	Mg.	
Carrot —Continued. Canned.....	Europe; spectrographic method.....											
	Commercial samples; U. S. A.; dye titration: Canned in 10; average and range, 6 samples.....	136,310				0.8-2						190
	Canned in glass; average and range, 5 samples.....	113,790				0.9-1.6						200
	Strained, canned in tin.....					0.9-4.3						199
Dried.....	Strained, canned in glass; spectrographic method: Canned in 1932.....		6,270			3.4						
	Strained and canned in 1932.....		6,600									
	Strained and canned in 1934.....											
	Germany; dye titration.....		31.5									109
Frozen.....	Commercial sample; Boston market; spectro- graphic method.....		13,550			10.3						98
	Fresh; U. S. A.; dye titration.....					7.6						99
	Europe; spectrographic method: Entire roots.....											59
	Outer orange part of root.....	118,900				4.0						82
Cauliflower.....	Commercial sample; dye titration: Entire root.....	130,200										102
	Outer orange part of root.....	16,150										200
	Fresh.....					31						225
	India; dye titration.....					75						195
Cashew nut.....	India; fluorometric method.....									190		
	Danmark; New York; dye titration: September.....					95						280
	Freshly harvested.....					82						
	Early Snowball; New York; dye titration: July.....					98						280
Cauliflower.....	Freshly harvested.....					89						
	Early Snowball; New York; dye titration: July.....					101						280
	Freshly harvested.....					103						
	Held 2 weeks at 1°-3° C. after harvesting.....											
Cauliflower.....	Forced, New York; dye titration: July.....					97						280
	Freshly harvested.....					96						
	Held 2 weeks at 1°-3° C. after harvesting.....											
						100						

[illegible]

: International Unit values were calculated from carotene analyses or included carotene analyses.

³ Values per 100 ml.
⁴ Values on raw-weight basis.

Vitamin values per 100 grams of edible portions of foods—Continued

Item (1)	Description of sample (2)	Vitamin A value		Thiamin (vitamin B ₁)		Ascorbic acid (vitamin C)		Vitamin D		Riboflavin (7a) (7b)	Refer- ences (9)
		(3a)	(3b)	(4a)	(4b)	(5a)	(5b)	(6a)	(6b)		
Cauliflower.—Con.	Rumalia, dye titration: Cooked.....	I. U.	I. U.	Meg.	Meg.	Mg.	Mg.	I. U.	I. U.	Meg.	204
	U. S. A.; dye titration: Frozen for 10 days at room temperature.....					40	33.7				21
	U. S. A.; rat-growth method.....			168			{ 125 10-12 }				28
FROGS.	Cooked or canned; average and range; England, dye titration.....										202
	Chester samples; Boston market; spectro- graphic method.....										82
	Flowers; July; New York; dye titration: Early Snowball.....		± 290								
Various parts.	Forbes.....					100					250
	White Mountain.....					103					
	Stamford; dye titration: Danaumac.....					106					
Cauliflower.—Cont.	Early Snowball.....					90					280
	White Mountain.....					95					
	Average, 4 varieties; July; dye titration: Stamford.....					82					
Various parts.	Flowers.....					103					250
	Argentina; dye titration: Stamford.....					{ 85 72-84 223-250 }					216
	Leaves; average and range.....										209
Cauliflower.	Thiochrome method.....			Nil							
Celery.	Green Utah; same for stalks; market sample; Yale; dye titration: Fresh.....					5.87-7.86	{ 2.10 4.13 7.4-8.9 }				203
	Cooked.....										
	Cooking liquid from above sample.....					10.4					34
Various parts.	Salt Lake variety; garden fresh; blanched; Ohio; dye titration.....					{ 10 7-14 }					216
	Average and range; Argentina; dye titration: Thiochrome method.....										209
	England; thiochrome method: Average and range.....			45							11

[illegible]

^a Values on cooked- or processed-weight basis.

Values on raw-weight basis.

Vitamin values per 100 grams of edible portions of foods---Continued

Item	(1)	Description of sample	(2)	Vitamin A value		Thiamin (vitamin B ₁)	Ascorbic acid (vitamin C)	Vitamin D	Riboflavin	Refer. source (8)
			(3a)	(3b)	(4a)	(4b)	(5a)	(5b)	(7a)	(7b)
Chicken—Con.		Leg from Single Comb White Leghorn; average and range, New York; fluorometric method: diet contained 1 mcg. riboflavin per gm. Diet contained 6.9 mcg. riboflavin per gm. ration.	I. U.							
		Diet contained 6.9 mcg. riboflavin per gm. ration.	I. U.							
		Diet contained 6.9 mcg. riboflavin per gm. ration.	I. U.							
		Diet contained 6.9 mcg. riboflavin per gm. ration.	I. U.							
		Diet contained 6.9 mcg. riboflavin per gm. ration.	I. U.							
		Diet contained 6.9 mcg. riboflavin per gm. ration.	I. U.							
		Diet contained 6.9 mcg. riboflavin per gm. ration.	I. U.							
		Diet contained 6.9 mcg. riboflavin per gm. ration.	I. U.							
		Diet contained 6.9 mcg. riboflavin per gm. ration.	I. U.							
		Diet contained 6.9 mcg. riboflavin per gm. ration.	I. U.							
	Diet contained 6.9 mcg. riboflavin per gm. ration.	I. U.								
	Diet contained 6.9 mcg. riboflavin per gm. ration.	I. U.								
	Diet contained 6.9 mcg. riboflavin per gm. ration.	I. U.								
	Diet contained 6.9 mcg. riboflavin per gm. ration.	I. U.								
	Diet contained 6.9 mcg. riboflavin per gm. ration.	I. U.								
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	Diet contained 6.9 mcg. riboflavin per gm. ration.	I. U.								
	Diet contained 6.9 mcg. riboflavin per gm. ration.	I. U.								
	Diet contained 6.9 mcg. riboflavin per gm. ration.	I. U.								
	Diet contained 6.									

Large variety; ripe; India; dye titration: Raw.....	174.9	± 224.9	25
Large variety; unripe; India; dye titration: Raw.....		18.4	25
Large variety; unripe; India; dye titration: Cooked.....		± 158.2	25
Large variety; unripe; India; dye titration: Round and short; green; India; dye titration.....	78.9		211
Small variety; ripe; India; dye titration: Raw.....	148.0		211
Small variety; unripe; India; dye titration: Raw.....	138.8		25
Small variety; unripe; India; dye titration: Raw.....		148.1	25
Small variety; unripe; India; dye titration: Raw.....		9.9	25
Small variety; unripe; India; dye titration: Raw.....		± 165.3	25
Small variety; unripe; India; dye titration: Fresh.....		27.4	25
Small variety; unripe; India; dye titration: After 26 hours at room temperature.....		57.4	212
Small variety; unripe; India; dye titration: Ripe; India; fluorometric method.....		55.5	196
Small variety; unripe; India; dye titration: Green; India; dye titration.....			106
Small variety; unripe; India; dye titration: Green; India; dye titration.....			106
Small variety; unripe; India; dye titration: Skin.....	380		226
Small variety; unripe; India; dye titration: Skin.....	390		226
Small variety; unripe; India; dye titration: Garden fresh; Ohio; dye titration.....	54.3		34
Small variety; unripe; India; dye titration: Garden; dye titration.....	41		279
Small variety; unripe; India; dye titration: Milk chocolate; thinchrome method.....	30		260
Small variety; unripe; India; dye titration: Milk chocolate; thinchrome method.....	30		260
Small variety; unripe; India; dye titration: Unsweetened commercial sample, fast-growth method.....	58.60		260
Small variety; unripe; India; dye titration: Unsweetened commercial sample, fast-growth method.....			260
Small variety; unripe; India; dye titration: Rough-lemon rootstock; Florida; dye titration.....		± 33.35	17
Small variety; unripe; India; dye titration: Average and range, 3 samples; Texas; dye titration.....		{ 55.1 51.5-57.8 }	85
Small variety; unripe; India; dye titration: Marsh; range, 6 locations; Texas; dye titration.....		332.1-43.8	131
Small variety; unripe; India; dye titration: Marsh; range, 6 locations; Texas; dye titration.....		327.9	131
Small variety; unripe; India; dye titration: Marsh; range, 6 locations; Texas; dye titration.....		± 30.2	131
Small variety; unripe; India; dye titration: Marsh; range, 6 locations; Texas; dye titration.....		± 96.4	131
Small variety; unripe; India; dye titration: Marsh; range, 6 locations; Texas; dye titration.....		132.6-37.8	131
Small variety; unripe; India; dye titration: Marsh; range, 6 locations; Texas; dye titration.....			131
Small variety; unripe; India; dye titration: Marsh; range, 6 locations; Texas; dye titration.....		± 28.5	131
Small variety; unripe; India; dye titration: Marsh; range, 6 locations; Texas; dye titration.....		± 35.5	131
Small variety; unripe; India; dye titration: Marsh; range, 6 locations; Texas; dye titration.....		± 32.4	131

^a Values on cooked- or processed-weight basis.

Values per 100 ml.

Vitamin values per 100 grams of edible portions of foods—Continued

Item (1)	Description of sample (2)	Vitamin A value		Thiamin (vitamin B ₁)		Ascorbic acid (vitamin C)		Vitamin D		Riboflavin (7b)	Refer- ences (8)
		(3a)	(3b)	(4a)	(4b)	(5a)	(5b)	(6a)	(6b)		
Citrus fruit—Con- taining Sour varieties	Florida, Texas; dye titration.....	I. U.	I. U.	Meg.	Meg.	Mg.	Mg.	I. U.	I. U.	Meg.	86
	Everbearing; rough-lemon rootstock; Florida; dye titration.....					44.6					17
	Many varieties; average and range, 4 samples; Texas; dye titration.....					14.2					96
	Florida; rough-lemon rootstock; Florida; dye titration.....					14.5					
Unclassified	Green.....					6.9-18.7					
	Ripe.....					1.55					17
	Green.....					1.22					
	Ripe.....					1.30					
Unclassified	Perlite; ripe; Florida; dye titration.....					1.40					52
	Florida; ripe; Florida; dye titration.....					1.24					52
	Held 2 months in cold storage; average, 10 samples.....					1.26					52
	Florida; dye titration.....					29.1					56
	Green; ripe; Florida; dye titration.....					24.0-42.2					56
	Green; ripe; Florida; dye titration.....					15.9					56
	Green; ripe; Florida; dye titration.....					13.2					56
	Green; ripe; Florida; dye titration.....					11.2					56
	Green; ripe; Florida; dye titration.....					6.9-14.3					56
	Yellow, round; thin rind; average and range, 2 samples; dye titration.....					14.8					56
	Yellow, round; thin rind; average and range, 2 samples; dye titration.....					21.5					56
	Yellow, round; thin rind; average and range, 2 samples; dye titration.....					26.2					56
Unclassified	Average and range; Argentina; dye titration.....					27.4-30.7					217
	California; ras-growth method.....					1.67					217
	California; ras-growth method.....					1.67					217
	California; ras-growth method.....					1.67					217
	California; ras-growth method.....					1.67					217
	California; ras-growth method.....					1.67					217
	California; ras-growth method.....					1.67					217
	California; ras-growth method.....					1.67					217
	California; ras-growth method.....					1.67					217
	California; ras-growth method.....					1.67					217
	California; ras-growth method.....					1.67					217
	California; ras-growth method.....					1.67					217
Unclassified	Average and range, 4 samples.....					2.84					9
	Average and range, 4 samples.....					1.47-62					9
	Average and range, 4 samples.....					24.5					26
	Average and range, 4 samples.....					24.5					26
Unclassified	Fuji; dye titration.....					1.67					291
	Indica; fluorometric method.....					1.67					291

Vitamin values per 100 grams of edible portions of foods—Continued

Item (1)	Description of sample (2)	Vitamin A value (3a) (3b)		Thiamin (vitamin B ₁) (4a) (4b)		Ascorbic acid (vitamin C) (5a) (5b)		Vitamin D (6a) (6b)		Riboflavin (7a) (7b)	Refer- ences (8)
		I. U.	I. U.	Mg.	Mg.	Mg.	Mg.	I. U.	I. U.		
Citrus fruit—Con. Lime—Con.	India, dye titration. Dye titration.			Mg.	Mg.	Mg.		I. U.	I. U.	Mg.	
				16.8 38.8 34.9 45.9							1 34 102 102
Limequat.	Lakeland; average, 12 fruits; Florida; dye titration. Ezels; Cleopatra rootstock; Florida; dye titration. Ezels; rough-lemon rootstock; Florida; dye titra- tion.			18 24							17 17
				23.0 32.0 30.3-35.6 22-36							52
Orangequat.	Nippon; average, 8 fruits; Florida; dye titration Pumelo Cross; tangelo; Texas; dye titration Satsuma; rough-lemon rootstock; Florida; dye titration.										85
				15-22							17
Pummelo.	King Or.; dye titration. King Or.; dye titration. Florida; dye titration.			14-26							17
				64-77							17
Satsuma and King Orange.	Bitter sweet orange; seedling; rootstock; Florida; Bitter titration. Spain; dye titration: Average and range, 6 samples. After 1 month at room temperature; average, 3 samples.			143 25-54							
				137							9
Sour orange.	Average and range, 8 samples. After 1 month at room temperature; average, 2 samples. Drake; sour orange rootstock; Florida; dye titra- tion. Spain; variety; range, 24 samples; Spain; dye ti- tation. Seedling; Florida; dye titration. Blood; sweet orange rootstock; Florida; dye titra- tion. Boone's Early; rough-lemon rootstock; Florida; dye titration.			132 22-48							17
				150-61							200
Sweet orange.	Blood; sweet orange rootstock; Florida; dye titra- tion. Boone's Early; rough-lemon rootstock; Florida; dye titration.			130-48 38-51							17
				52-55							17

Mediterranean; sweet orange rootstock; Florida; dye titration.		# 85	17
Navel, average and range, 15 samples; California; dye titration.	{	# 38 { # 59-68	60
Navel, fancy; California, dye titration.		# 61	217
Navel, common; D. C., market; California; rai-growth method.	{		29
Navel, dye titration. California.	{ ca 250		
Navel, sweet orange rootstock; Florida; dye titra- tion.		# 38 # 55	181
Navel, range, 3 locations; Texas; dye titration.		# 1	17
Navel; averages for all determinations regardless of location or season; dye titration.		38.6-41.8 # 41.1	181 181
Texas Navel (seedless); average and range, 2 samples; Texas; dye titration.	{	{ 46.1	
Washington Navel (seedless); 15 samples of 6 oranges each; California; dye titration.		{ { 3.5-35.6 # 58	85
Washington Navel (seedless) 2 samples; Texas; dye titration.		{ 29.2 30.3	52
Walla Walla Navel; loosely picked; Western Aus- tralia; dye titration.		{ 39	85
Navel, dye titration.		49	123
Parson Brown; grapefruit rootstock; Florida; dye titration.		48.0	123
Pineapple; rough-lemon rootstock; Florida; dye titration.		{ 45-51	34 17
Parson Brown; rough-lemon rootstock; Florida; dye titration.		{ 33-51	17
Picked in August, seed and immature pleasantly tart and watery		# 66 # 68	
Picked in November, commercial picking.		# 65	
Parson Brown; sour orange rootstock; Florida; dye titration.		{ 45	
Picked in November, acid and immature pleasantly tart.		{ 67 # 58	110
Picked in January, sweet		# 66	
Parson Brown; sour orange rootstock; Florida; dye titration.		{ 38-64	17
Parson Brown; Florida rai-growth method	{ 42		
Pineapple; average and range, 9 samples; Florida; dye titration.	{ 60	{ # 51 { 38-61	29 50

* Values per 100 ml.

Vitamin values per 100 grams of edible portions of foods—Continued

Item	Description of sample	Vitamin A value (3a)	Thiamin (vitamin B ₁) (4a)	Ascorbic acid (vitamin C) (5a)	Vitamin D (6a)	Riboflavin (7a)	Refer- ences (8)
(1)	(2)	(3b)	(4b)	(5b)	(6b)	(7b)	
Citrus fruit—Con-	Pineapple, rough-lemon rootstock; Florida; dye titration:	I. U.	Mcp.	Mg.	I. U.	Mcp.	110
Sweet orange—Cm.	Picked Aug. 30, very acid and immature.	I. U.	Mcp.	Mg.	I. U.	Mcp.	89
	Picked early January, commercial picking.						17
	Picked early March, sweet and watery.						52
	Pineapple, dye titration:						52
	Picked early March, commercial picking.						52
	Picked early May, commercial picking.						52
	Fresh, range, 4 samples; central Florida.						52
	After 1 month storage at 42° F.						52
	Fresh, range, 3 samples; east coast of Florida.						52
	After 1 month storage at 42° F.						52
	Pineapple, rough-lemon rootstock; Florida; dye titration.						52
	Pineapple, sour orange rootstock; Florida; dye titration.						52
	Pineapple, sweet orange rootstock; Florida; dye titration.						52
	Pineapple, average and range, 6 lots of 5 oranges each; Florida; dye titration.						52
	Pineapple, Florida; dye titration:						52
	Average, 5 oranges.						52
	Pineapple, Florida; rat-growth method.						52
	do.						52
	Pineapple, dye titration:						52
	Florida.						52
	Pineapple, average for all determinations regardless of location or season; dye titration.						52
	Pineapple, range, samples from 3 locations; Texas; dye titration.						52
	Baby (Blood), average, 6 oranges; Florida; dye titration.						52
	Sunford, Mediterranean; average 6 oranges; dye titration.						52
	Saunder Indian; dye titration.						52

Vitamin values per 100 grams of edible portions of foods—Continued

Item (1)	Description of sample (2)	Vitamin A value (3a) I. U. (3b) I. U.	Thiamin (vitamin B ₁) (4a) Mcg. (4b) Mcg.	Ascorbic acid (vitamin C) (5a) Mcg. (5b) Mcg.	Vitamin D (6a) I. U. (6b) I. U.	Riboflavin (7a) Mcg. (7b) Mcg.	Refer- ences (8)
Citrus fruit—Con. Sweet orange—Cal.	Valencia, rough-lemon rootstock; young trees; picked in November, acid and immature.		Mcg. 149	Mcg.		Mcg.	110
	Picked in March, commercial picking; pleasant taste.		130				
	Picked in June, sweet and waxy.			129			110
	Valencia, rough-lemon rootstock; picked in April; average and range, 25 oranges; Florida, dye titration.						
	Fruit picked from cutter branches of tree						
	....do.					
do						17
	Valencia, rough-lemon rootstock; Florida; dye titration.						
	Valencia, sour orange rootstock; Florida; dye titration.						110
	Picked in November, acid and immature.						
Citrus fruit—Con. Sweet orange—Cal.	Picked in March, commercial picking; pleasantly tart.						
	Picked in June, sweet.						
	Picked in November, acid and immature.						110
	Picked in April, commercial picking; pleasantly tart.						
	Picked in June, sweet.						
	Picked in December, very acid.						110
	Picked in March, commercial picking; pleasantly tart.						
	Picked in July, pleasantly tart.						
	Valencia, rough-lemon rootstock; picked in April; average and range, 25 oranges; Florida; dye titration.						

Vitamin values per 100 grams of edible portions of foods—Continued

[illegible]

[illegible]

Values per 100 ml.

Vitamin values per 100 grams of edible portions of foods—Continued

Item (1)	Description of sample (2)	Vitamin A value		Thiamin (vitamin B ₁)		Ascorbic acid (vitamin C)		Vitamin D		Riboflavin (7a)	Refer- ences (8)
		(3a)	(3b)	(4a)	(4b)	(5a)	(5b)	(6a)	(6b)		
Citrus fruit.—Con- tinued.	Temple Orange; dye titration: Florida	I. U.	I. U.	Meg.	Meg.	Mg.	Mg.	I. U.	I. U.	Meg.	181
	Temple Orange; average and range, 4 samples; Texas: dye titration.					{ 28.6 32.1-48.8 }					85 181
	Temple Orange; average and range, for all determinations regardless of location or season: dye titration.					{ 32.1-48.8 }					
	Thornon; average and range, 6 lots of 5-6 fruits each; Florida: dye titration.					{ 29.37 }					52
	Thornon; dye titration.					{ 29.37 }					52
	Unasilis; average and range, 6 lots of 3 fruits each; Florida: dye titration.					{ 35.53 }					52
	Winnamun; average and range, 6 fruits; Florida: dye titration.					{ 35.53 }					52
	Mandarin; average and range; Argentina; dye titration.					{ 54 }					216
	Mandarin; sour orange rootstock; Florida; dye titration.					{ 59.59 }					17
	Mandarin; freshly picked; western Australia; dye titration.					{ 31 }					17 128
Tangerine orange.	Clémentine; average, 6 fruits; Florida; dye titra- tion.					{ 37 }					52
	Dancy; average and range, 6 lots of 5-6 fruits each; Florida; dye titration.					{ 24 }					52
	Dancy; average, 6 fruits; Florida: dye titration.					{ 28 }					52
	Dancy; dye titration.					{ 28 }					52
	Washington, D. C., market; Florida; rat-growth test.					{ 27 }					20
	Rough lemon rootstock; Florida; dye titration.					{ 27 }					17
	Florida; dye titration.					{ 27 }					17
	Florida; dye titration.					{ 27 }					17
	Average and range, 5 samples; Jamaica; dye titra- tion.					{ 10.20 }					9
	Average and range, 4 samples; Spain; dye titra- tion.					{ 31.36 }					9
Pulp, bradycardia method.	Pulp, bradycardia method.			120		{ 31.36 }					11
	Dye titration.					{ 31.36 }					11 128 102

Tangerine.....	Loose skin variety; ripe; India; dye titration: Peel.....	42.7					211
	Juice.....	131.3					
	Peel.....						
	Loose skin variety; very ripe; India; dye titration: Peel.....	94.5					211
	Juice.....	108.8					
	Peel.....						
	Loose skin variety; unripe; India; dye titration: Peel.....	70.5					211
	Juice.....	108.6					
	Dye titration: Peel.....	82.3					
	Juice.....	103.2					56
Grape.....	Peel; Seville; dye titration.....	96					9
	Juice.....	120					9
	Peel; India; dye titration.....	1.2					1
	Dye titration: Peel.....	69					9
	Juice.....	115					23
	Whole; 72.1 percent moisture; Japan; lumiflavins method.....	5.70					248
	Spawns and viscera; Japan; lumiflavins method.....						248
	Commercial sample; U. S. A. market; rat-growth method.....						23
	English market; thiochrome method.....						209
	India; dye titration.....						209
Coconut.....	Thiochrome method.....	1.8					209
	Dried; bradyzaxia method.....	0.8					209
	From fresh green coconut; India; dye titration.....	5.4					209
	From ripe coconut; India; dye titration.....	7.56					1
	India; dye titration.....	5.0					1
	Thiochrome method.....	2.0					211
	Filet; fresh; Germany; chromatographic-color.....						209
	Greenland; dye titration.....	2					223
	Muscle and skin; 81 percent moisture; Japan; lumiflavins method.....						134
	Thiochrome method.....						248
Milk.....	Spawns; 40 percent moisture; Japan; lumiflavins method.....						11
	Various organs (see various organs table).....						209
	Cod roe (see Cod roe).....						248
	Values per 100 ml.....						
Cod.....	Various organs (see various organs table).....						11
	Cod roe (see Cod roe).....						209
	Values per 100 ml.....						248

* Values per 100 ml.

Vitamin values per 100 grams of edible portions of foods—Continued

Item (1)	Description of sample (2)	Vitamin A value (3a) (3b)	Thiamin (vitamin B ₁) (4a) (4b)	Ascorbic acid (vitamin C) (5a) (5b)	Vitamin D (6a) (6b)	Riboflavin (7a) (7b)	Refer- ences (8)
Corn—Continued. Sweet—Con. Frozen—Con.							
	Golden Cross Bactam; 2 commercial samples; U. S. A.; rat-growth method; Stored at 0° F.	I. U. 100 110 130 230	Meg. 100 110 130 230	Mg. 9.5 10	I. U. I. U.	Meg. Meg.	297
	Stored at -40° F.						
	"On the cob"; average and range; harvested Aug. 28-Sept. 24; commercially frozen; U. S. A.; dye titration.						
	"Corn-on-cob"; commercial sample; U. S. A.; dye titration.						82
	Whole kernel; commercial sample; U. S. A.; dye titration.						82
	Whole kernel; harvested Aug. 22-Sept. 24; commercially frozen; average and range; U. S. A.; dye titration.						63
	A per cooking 1 minutes in boiling water.			8.2 9.0 7-11			82
Sweet or Imma- ture field	Indian corn; young ears; India; dye titration.						
	Yellow; India; fluorometric method.			8.03 8.5			211
	Young ears; India; fluorometric method.						211
	Malze U. S. A.; fluorometric method.						291
	Mature roasting ear stage.						
	"On the cob"; thiochrome method.		144				126
Corn flakes	Commercial product; U. S. A.; rat-growth method.		Trace				209
Corn flour	Thiochrome method.		NH				28
Corn meal	White; small amount of bran removed in milling; U. S. A.; rat-growth method.		303				28
	Yellow; small amount of bran removed in milling; U. S. A.; rat-growth method.	333					29
	Yellow; small amount of bran removed in milling; U. S. A.; rat-growth method.		234				28
	Bioassay Fluorometric method.					1,070 450	260

Vitamin values per 100 grams of edible portions of foods—Continued

Item	Description of sample	Vitamin A value		Thiamin (vitamin B ₁)		Ascorbic acid (vitamin C)		Vitamin D		Riboflavin	References	
(1)	(2)	(3a)	(3b)	(4a)	(4b)	(5a)	(5b)	(6a)	(6b)	(7a)	(7b)	(8)
Corn—Con- Dry—Continued.	Brabham; mature seeds; U. S. A.; rat-growth methods.	I. U.	I. U.	Mg.	Mg.	Mg.	Mg.	I. U.	I. U.	Mg.	Mg.	105
	Clay; mature seeds; U. S. A.; rat-growth methods.	0		1,110								105
	Graham; mature seeds; U. S. A.; rat-growth methods.	50		900								105
	Iron; mature seeds; U. S. A.; rat-growth methods.	0		1,050								105
	Small black; mature seeds; U. S. A.; rat-growth methods.	0		840								105
	do.			930								105
	Sugar crowder; mature seeds; U. S. A.; rat-growth methods.											
	(Green)	0		780								105
	(Brown)	50		780								105
	Whippoorwill; mature seeds; U. S. A.; rat-growth methods.	0		690								29
Corn.	Avenae, 9 varieties; mature seeds; U. S. A.; rat-growth method.	0		900								105
	U. S. A.; rat-growth method.			935								28
	Meat; China; dye titration.					12.62						41
	Muscle, boiled in salted water; Japan; luminifluorimetric method.									12.6		248
	Blue crab; meat; Atlantic.			230		.012				150		230
	Commercial sample; U. S. A.; rat-growth method.			75		0						(9)
	U. S. A.; dye titration.			110								(9)
	Saltines, commercial sample; U. S. A.; rat-growth method.			200								(9)
	Commercial sample; U. S. A.; rat-growth method.	120										82
	Boston market; spectrographic method.	63.70				19						32
Cranberry.	New Jersey; rat-growth method.	120										29
	Boston market, commercial sample; spectrographic method.											82
Frozen.	Greenland; dye titration.					3						134

Vitamin values per 100 grams of edible portions of foods--Continued

Item	(1)	Description of sample	Vitamin A value		Thiamin (vitamin B ₁)		Ascorbic acid (vitamin C)		Vitamin D		Riboflavin		References
			(3a)	(3b)	(4a)	(4b)	(5a)	(5b)	(6a)	(6b)	(7a)	(7b)	
Currant, black— Continued.	(1)	(2)	I. U.	I. U.	Mcp.	Mcp.	Mcp.	Mcp.	I. U.	I. U.	Mcp.	Mcp.	201
		Wellington; ripe, average and range, 3 batches					258						201
		Westwick; Choke; ripe, average and range, 7 batches from 2 farms; England; dye titration.					257						201
		Wellington; ripe, average and range, 3 batches from 2 farms; England; dye titration.					257						201
		Black nearly ripe, small, late July					257						201
		Black, nearly ripe, medium, late July					257						201
		Black, nearly ripe, large, late July					257						201
		Black, ripe, small, early August					257						201
		Black, ripe, medium, early August					257						201
		Black, ripe, large, early August					257						201
		Green, unripe, small, 1 week later					257						201
		Green, unripe, medium, early June					257						201
		Green, unripe, large, early June					257						201
		Green, unripe, large, 1 week later					257						201
		Dark, ripe, dye titration:					257						201
		Fresh					257						201
		Canned					257						201
		Canned, stored 3 months at 15° C					257						201
		Canned, stored 6 months at 15° C					257						201
		Fresh, stored 3 months at 15° C					257						201
		Canned, stored 1 year at 15° C					257						201
		Fresh; range, 2 batches; England; dye titration:					257						201
		Raw					257						201
		After cooking in sirup, liquid included					257						201
		After commercial canning in sirup, liquid included					257						201
		Ripe, average and range, 4 batches from 2 farms, Fresh, average, 2 batches; England; dye titration.					257						201
		Wellington; ripe, average and range, 3 batches from 2 farms; England; dye titration:					257						201
		Black, ripe, small, early August					257						201
		Black, ripe, medium, early August					257						201
		Black, ripe, large, early August					257						201
		Green, unripe, small, 1 week later					257						201
		Green, unripe, medium, early June					257						201
		Green, unripe, large, early June					257						201
		Green, unripe, large, 1 week later					257						201
		Dark, ripe, dye titration:					257						201
		Fresh					257						201
		Canned					257						201
		Canned, stored 3 months at 15° C					257						201
		Canned, stored 6 months at 15° C					257						20

Country	Preparation	Yield (%)	Notes	Reference
England	9-1 day after commercial canning.	16.8 5.8		200
	After 1 and 33 weeks storage at room temperature.	17.0 18.2 19.9		202
Commercially canned; average and range; England; dye titration.		180-182		
Denmark	Fresh, raw.	1.99		138
	Pasteurized 30 minutes, 60°-80° C.	2.71-7.8		
	Pasteurized 30 minutes, 60°-80° C., stored 7 months at 15° C.	2.62-4.9		
Denmark; dye titration.		1.115		
	Boiled, filtered, bottled, pasteurized 30 minutes, 70°-75° C.	1.14		
	Stored 3 months at 15° C.	1.118		
Commercial sample, pasteurized; England.		1.100		
Red Lake, freshly picked; Ohio; dye titration.		1.200		39
Shanghai, dye titration.		24.5		34
Fresh.		30		202
Jan made from above.		30-60		
England; bacrylaria method.				
France; bacrylaria method.				
Fresh, 12 samples.		23.8-45.6		229
Stored 2 weeks at 2° C., 6 samples.		30.0-38.0		270
Germany; dye titration.		30.6		270
Grown near Washington, D. C.; rat-growth method.		1.48		39
Commercial sample; pasteurized; England.				
Japan; lumifavin method.				
Fresh, 88.3 percent moisture.				
1 dried, 99.9 percent moisture.				
Cultivated, cooked; Washington, D. C., market; bacrylaria method.		15		29
Greenland; dye titration.				
Freshly picked; Ohio; dye titration.		134.9		134
Spring.		30.5		34
U. S. A.; chromatographic and spectrophotometric method.		114, 260		187

¹ International Unit values were calculated from carotene analyses or included carotene analyses.^a Values on cooked- or processed-weight basis.

Values per 100 ml.

Values on raw-weight basis.

[illegible]

Vitamin values per 100 grams of edible portions of foods—Continued

Item	Description of sample	Vitamin A value (3a)	I. U.	Thiamin (vitamin B ₁) (4a)	Ascorbic acid (vitamin C) (5a)	Vitamin D (6a)	Riboflavin (7a)	Refer- ences (8)
Egg white, hen's— Continued.	(2)							
	From White Leghorn hens, basal ration containing no vitamins; supplemented with U. S. A., microbiological method.							
	First hen, basal ration; 25 mg. riboflavin daily							
	Second hen, basal ration; 50 mg. riboflavin daily							
	First hen, basal ration; 50 mg. riboflavin daily							
	Second hen, basal ration							
	Second hen, basal ration + 50 mg. riboflavin							
	(England); thiochrome method							
	India; fluorometric method							
	U. S. A.; microchemical method							
	U. S. A.; rat-growth method							
	U. S. A.; microbiological method							
Egg yolk, hen's—								
	From Jersey Black Giants mated with White Leghorns, on limited ration; ration supplemented with plant product; February-June; U. S. A., rat-curative method.							
	From Jersey Black Giants mated with White Leghorns, no direct sunlight; U. S. A.; rat-curative method.							
	Supplemented with 1.4 I. U. vitamin D from cod-liver oil per gm. of feed.							
	Supplemented with 5.6 I. U. vitamin D from cod-liver oil per gm. of feed.							
	Supplemented with 5.6 I. U. vitamin D from cod-liver oil per gm. of feed.							
	Supplemented with 5.6 I. U. vitamin D from cod-liver oil per gm. of feed.							
	Supplemented with 7.2 I. U. vitamin D from cod-liver oil per gm. of feed.							
	Supplemented with 14.4 I. U. vitamin D from cod-liver oil per gm. of feed.							
	From White Leghorns on basal diet supplemented with 14.4 I. U. vitamin D; Ohio, rat-curative method.							

Supplemented with 54 I. U. vitamin D from irradiated ergosterol per gm. of feed.					2, 750	23
Supplemented with 3.4 I. U. vitamin D from irradiated ergosterol per gm. of feed.					250	
Supplemented with 54 I. U. vitamin D from cod-liver oil per gm. of feed.					4, 250	
Supplemented with 54 I. U. vitamin D from cod-liver oil per gm. of feed.					450	
Supplemented with 0.54 I. U. vitamin D from cod-liver oil per gm. of feed.					65	
Supplemented with 0.54 I. U. vitamin D from cod-liver oil per gm. of feed.					25	
No supplement						
From White Leghorn pullets on basal ration (mash+yellow corn+wheat); Wisconsin, spec-						
1 percent cod-liver oil added to ration.	3, 070					
2 percent cod-liver oil added to ration.	2, 820					
3 percent cod-liver oil added to ration.	2, 580					
0.25 percent cod-liver oil added to ration.	2, 370					
On basal ration alone.	2, 200					
On basal ration supplemented with cod-liver oil.	1, 500					
From Single Comb White Leghorn pullets; U. S. A.; rat-growth method.	140					
Basal diet supplemented with 10 Sherman units vitamin A per gm. of ration.	52					
Basal diet supplemented with 2.5 Sherman units vitamin A per gm. of ration.	105					
Basal diet supplemented with 0.25 Sherman units vitamin A per gm. of ration.						
England; rat-growth method.	3, 000					
2 samples; England; rat-curdative method						
(England); thiochrome method.	480				150	46
Sweden; fuorometric method.	140				500	46
U. S. A.; rat-growth method.						217
U. S. A.; rat-growth method.	354					217
U. S. A.; microbiological method.						218
Black King, guinea fowl; 0.016% dye titration.					760	232
Fort Myer, Maryland; titration, D. C., market.						34
Average and range.	Nil				12.1	39
Average and range.					{ 11 }	216
Java; rat-growth method.					{ 0-3 }	98
Average and range, 5 samples; Texas.	24-25				{ 2.1 }	85
U. S. A.; fuorometric method.					{ 1.5-2.9 }	126

Values on cooked- or processed-weight basis.

Vitamin values per 100 grams of edible portions of foods—Continued

Item (1)	Description of sample (2)	Vitamin A value		Thiamin (vitamin B ₁)		Ascorbic acid (vitamin C)		Vitamin D		Riboflavin		Refer- ence (8)
		I. U.	(3a) (3b)	I. U.	(4a) (4b)	Mg.	(5a) (5b)	I. U.	(6a) (6b)	Mg.	(7a) (7b)	
Endive	Basavian Full-Heart; New York; dye titration: Freshly harvested; held for 5 days at 15-30° C. after harvesting.			Meg.	Meg.	12	10	I. U.		Meg.	Meg.	280
	Green; garden fresh; Ohio; dye titration.					13.0						34
	Green; garden fresh; Ohio; dye titration.					14						28
	Green; garden fresh; Ohio; dye titration.					13						280
	Green; garden fresh; Ohio; dye titration.											26
	Green; garden fresh; Ohio; dye titration.											209
	Green; garden fresh; Ohio; dye titration.											250
	Green; garden fresh; Ohio; dye titration.											126
	Green; garden fresh; Ohio; dye titration.											28
	Green; garden fresh; Ohio; dye titration.											216
Escarole	Average and range; Arenifus; dye titration.					7						41
	Average and range; Arenifus; dye titration.					5-9						41
Fennel	Young leaves; China; dye titration.					11.39						212
	China; dye titration.					50.6						123
Fenugreek	Leaves; India; dye titration:					149.7						123
	After 24 hours at room temperature.											123
Fig	After 5 days at room temperature.					2						123
	Adam; freshly picked; western Australia; dye titration.					2						123
Fig	Adam; (Cresc); freshly picked; western Australia; dye titration.					2						123
	Brown Turkey; freshly picked; western Australia; dye titration.					3.9						244
Fig	China; (Cresc); freshly picked; western Australia; dye titration.					8.7						41
	China; (Cresc); freshly picked; western Australia; dye titration.					3						126

[illegible]

Values on cooked- or processed-weight basis.

4 Values on raw-weight basis.

This figure may be significantly affected by method of sampling because of oxidative enzymes.

mean values per 100 grams of edible portions of foods—Continued

Item (1)	Description of sample (2)	Vitamin A value		Thiamin (vitamin B ₁)		Ascorbic acid (vitamin C)		Vitamin D		Riboflavin		Refer- ences (8)
		(3a)	(3b)	(4a)	(4b)	(5a)	(5b)	(6a)	(6b)	(7a)	(7b)	
		I. U.	Meg.	I. U.	Meg.	Mg.	Mg.	I. U.	I. U.	Meg.	Meg.	
Gooseberry	Cape Gooseberry; western Australia; dye titration.											
	Canada; England; dye titration:											
	Green, hard, small.					1						123
	Green, hard, medium.					22						123
	Green, hard, large.					95						
	Green, hard, large.					74						
	Green, slightly soft, mixed sizes.					48						201
	Yellowish-green, soft, mixed sizes.					62						
	Yellowish-green, soft, mixed sizes.					62						
	Yellowish-green, soft, mixed sizes.					18.5						
	Poorman; freshly picked; Ohio; dye titration.					48						34
	Whitman; dye titration:											
	Green, hard, medium, mid-June.					45						
	Green, hard, large, mid-June.					39						
	Green, hard, medium, 1 week later.					46						
	Green, hard, medium, 1 week later.					35						
	Green, hard, large, 1 week later.					35						
	Green, hard, medium, 2 weeks later.					27						
	Green, hard, medium, 2 weeks later.					27						
	Green, hard, very large, 2 weeks later.					25						
	Green, hard, small, 2 weeks later.					25						
	Green, hard, medium, 2 weeks later.					22						
	Green, hard, large, 2 weeks later.					22						
	Streaked red, soft, small, early July.					37						
	Streaked red, soft, medium, early July.					35						
	Streaked red, soft, very large, early July.					35						
	Streaked red, soft, medium, 1 week later.					37						
	Streaked red, soft, large, 1 week later.					37						
	Streaked red, soft, very large, 1 week later.					37						
	Streaked red, soft, small, 2 weeks later.					30						
	Streaked red, soft, medium, 2 weeks later.					29						
	Streaked red, soft, large, 2 weeks later.					27						
	Red, ripe, medium, mid-July.					39						
	Red, ripe, large, mid-July.					36						
	Red, ripe, very large, mid-July.					30						
	Red, ripe, medium, 1 week later.					31						
	Red, ripe, large, 1 week later.					21						
	Red, ripe, very large, 1 week later.					39						
	Red, very ripe, small, mid-July.					37						
	Red, very ripe, medium, mid-July.					31						
	Red, very ripe, large, mid-July.					31						
	Red, very ripe, medium, 1 week later.					31						
	Red, very ripe, large, 1 week later.					26						

201

Vitamin values per 100 grams of edible portions of foods—Continued

Item	Description of sample	Vitamin A value	Thiamin (vitamin B ₁)	Ascorbic acid (vitamin C)	Vitamin D	Riboflavin	References
(1)	(2)	(3a)	(4a)	(5a)	(6a)	(7a)	(8)
Gooseberry—Con.	Indie, dye titration:	I. U.	Mg.	Mg.	I. U.	Mg.	96
	Fresh pulp:						
	Do.						
	Dried in shade at room temperature:						
	Dried in sun:						
	Fresh pulp:						
	Do.						
	Dried in shade at room temperature:						
	Dried in shade at room temperature:						
	Dried in sun:						
Canned.	Indie, dye titration:						245 244
	Do.						
	Dried in sun:						
	Indie, dye titration:						
	Do.						
	Indie, dye titration:						
	Do.						
	Indie, dye titration:						
	Do.						
	Indie, dye titration:						
Dried.	Indie, dye titration:						202
	Do.						
	Dried in sun:						
	Indie, dye titration:						
	Do.						
	Indie, dye titration:						
	Do.						
	Indie, dye titration:						
	Do.						
	Indie, dye titration:						
Juice.	Indie, dye titration:						96
	Do.						
	Dried in sun:						
	Indie, dye titration:						
	Do.						
	Indie, dye titration:						
	Do.						
	Indie, dye titration:						
	Do.						
	Indie, dye titration:						
Various parts.	Indie, dye titration:						96
	Do.						
	Dried in sun:						
	Indie, dye titration:						
	Do.						
	Indie, dye titration:						
	Do.						
	Indie, dye titration:						
	Do.						
	Indie, dye titration:						

Geard.	Dark red, ripe; inner tissue, pulp, and seeds.	14							201
	Outer tissue, ripe.	34							
	Dye.	30							
	Inner tissue, pulp, and seeds.	43							
	Outer tissue.	58, 46							
	Bitter; China, dye titration.	58, 4							41
	Bitter; India, dye titration.	109.7							211
	Green; leaves at room temperature, still green.								
	After 4 days at room temperature, still green.								
	Lookah; China, dye titration.	6.3							212
Various parts.	Snake gourd; India, colorimetric method.	Nil							41
	White; China, dye titration.	10.74							193
	India, dye titration.	14.1							211
	Skin.	67.1							41
	Black Prince; freshly picked; western Australia; dye titration.	5							225
	Orange; freshly picked; western Australia; dye titration.	2							123
	Muscadine; pulp; average and range; Texas; dye titration.	3.7							85
	Alexandria; freshly picked; western Australia; dye titration.	1.9-5.5							123
	Muscadine; pulp; freshly picked; western Australia; dye titration.	4							123
	Muscadine; pulp; freshly picked; western Australia; dye titration.	4							123
Grape.	Muscadine; pulp; freshly picked; western Australia; dye titration.	4							123
	Muscadine; pulp; freshly picked; western Australia; dye titration.	4							123
	Muscadine; pulp; freshly picked; western Australia; dye titration.	4							123
	Muscadine; pulp; freshly picked; western Australia; dye titration.	4							123
	Muscadine; pulp; freshly picked; western Australia; dye titration.	4							123
	Muscadine; pulp; freshly picked; western Australia; dye titration.	4							123
	Muscadine; pulp; freshly picked; western Australia; dye titration.	4							123
	Muscadine; pulp; freshly picked; western Australia; dye titration.	4							123
	Muscadine; pulp; freshly picked; western Australia; dye titration.	4							123
	Muscadine; pulp; freshly picked; western Australia; dye titration.	4							123

¹ Values on cooked or processed weight basis.

² Values per 100 ml.

³ Values on dry weight basis.

Lysine values per 100 grams of edible portions of foods—Continued

[illegible]

Vitamin values per 100 grams of edible portions of foods—Continued

Item (1)	Description of sample (2)	Vitamin A value (3a) (3b)	Thiamin (vitamin B ₁) (4a) (4b)	Ascorbic acid (vitamin C) (5a) (5b)	Vitamin D (6a) (6b)	Riboflavin (7a) (7b)	Refer- ences (8)
Grape—Continued. Wine—Continued.							
	Palo Alto; 1935 vintage, stored 12 months; California; rat-growth method	I. U.	Meg. 1.9	Mg.	I. U.	Meg.	190
	Falouton, California; rat-growth method					1.45 1.81	190 190
	Stored 19 months						190
	Zinfandel; 1935 vintage, stored 12 months; California; rat-growth method		0			1.27	190
	2 months stored 19 months; California; rat-growth method						
Grapefruit (see Citrus fruit).							
	Lawn grass; U. S. A.; dye titration			73			22
	Orchard grass; fresh green plants, 6-15 inches high; U. S. A.; colorimetric method	16,300 11,300		73.3			7
	Grass; U. S. A.; dye titration					50	211
	Fresh; Sweden; fluorometric method					400	211
	Dried in vacuum; Sweden; fluorometric method					2,370	67
	Range, 4 samples; dye titration					1,500- 2,500- 10-7,410	242
	Rat-growth method						272
	Microbiological method						
Grouse.			1.42				209
Guava.	Roasted; [Scotland]; thiochrome method			299.0			211
	Country variety; ripe; India; dye titration			11.0			211
	Bili variety; ripe and fresh; India; dye titration			19.1			211
	Bili variety; tender and fresh; India; dye titration			110			123
	India; dye titration					33	251
	India; fluorometric method			90.0			251
	Pulp; India; dye titration						1
	India; dye titration			102			225
	Fresh			185.4			
	Skin						
Various parts.							
	Fresh fillers; Washington, D. C.; market sample shipped from Boston; rat-growth method	NH					20
Blackduck.	Fresh; thiochrome method	9	NH				209
	Smoked; thiochrome method						209
Halibut.	U. S. A.; rat-growth method	84					28
	Thiochrome method	114					209
	Fresh; trawling method	180					11

[illegible]

International Unit values were calculated from carotene analyses or included carotene analyses.

Values on cooked- or processed-weight basis.

Values per 100 ml.

Values on raw-weight basis.

Values calculated from authors' data.

Vitamin values per 100 grams of edible portions of foods—Continued

Item	(1)	Description of sample	Vitamin A value		Thiamin (vitamin B ₁)		Ascorbic acid (vitamin C)		Vitamin D		Riboflavin	References
			(3a)	(3b)	(4a)	(4b)	(5a)	(5b)	(6a)	(6b)	(7a)	(7b)
Herring—Continued		Small, 1 sample, (Norway): Luminafin method	I. U.	I. U.	Mcp.	Mcp.	Mcp.	Mcp.	I. U.	I. U.	Mcp.	Mcp.
		Oxidation method									75	163
Canned		Thiobarbituric acid method									448	209
		Fried; brad, year dia method			6						528	13
Canned		Kippers; England; thiochrome method			Nil	0						209
		Kippers; Norway; luminafin method									88-100	163
Canned		Oxidation method									210	163
		Rat-growth method							1,400		508	162
Herring, rose		Small, 1 sample, aluminum can; Norway; rat-growth method										
		Rose nigrum; Denmark; dye titration:										
Herring, rose		Fresh					520					138
		Canned:										
Herring, rose		Canned, stored 3 months at 15° C						1,040				
		Canned, stored 2 years at 15° C						1,280				
Herring, rose		Canned, stored 2 years at 15° C						1,190				
		Canned, stored 3 years at 15° C						1,190				
Herring, rose		Denmark; dye titration:										
		Canned, stored 3 months at 15° C					520					
Herring, rose		Canned, stored 3 years at 15° C										
		Canned, stored 3 years at 15° C						1,190				
Herring, rose		Fresh					910					138
		Canned, stored 1 year at 15° C						1,150				
Herring, rose		Made from white corn, germ and hull mechanically removed; commercial sample; rat-growth method										
Herring, rose		Sweet clover, unstrained; Michigan; rat-growth method										
		Germany; dye titration:										
Herring, rose		Light, range of 11 samples					11-9.7					279
		Light brown, 1 sample					2.7-6					
Herring, rose		Thiochrome method			18		14.6					200
		Garden fresh Ohio; dye titration					122.4					304

Vitamin values per 100 grams of edible portions of foods—Continued

Item (1)	Description of sample (2)	Vitamin A value		Thiamin (vitamin B ₁)		Ascorbic acid (vitamin C)		Vitamin D		Riboflavin		Refer- ences (8)
		(3a)	(3b)	(4a)	(4b)	(5a)	(5b)	(6a)	(6b)	(7a)	(7b)	
		I. U.	Meg.	I. U.	Meg.	Meg.	Meg.	I. U.	I. U.	Meg.	Meg.	
Kidney* Beef	Fresh; Sweden; fluorometric method.											57
	U. S. A.; rat-growth and microbiological methods, respectively.			1,316	1,750					2,110	31,270	182, 183
	Stewed											
	U. S. A.; microbiological method.									1,970	31,282	183
Goat Fat	Stewed									2,890	31,380	
	England; thiochrome method.			171								209
	India; dye titration.			1,030		17.6						225
	U. S. A.; rat-growth and microbiological methods, respectively.			519						2,000		182, 183
Sheep Mutton (see Herring) Mozzarella	England; thiochrome method.			228						1,970		183
	England; microbiological method.			570								209
	Wheat; Paster Test; Germany; dye titration.					61.2						11
	Fresh; 92.5 percent moisture in sample.											
	After 48 hours at 7° C.; 89.7 percent moisture in sample.					56.4						229
	After 96 hours at 7° C.; 88.9 percent moisture in sample.					48.3						
	Fresh; 92.3 percent moisture in sample.					68.8						
	After 48 hours at 7° C.; 89.9 percent moisture in sample.											
	After 96 hours at 7° C.; 87.0 percent moisture in sample.											
	China; dye titration.					64.7						41
	Germany; dye titration.					34						209
	Germany; dye titration.					34						109
	Raw.					37.6						
	Steamed.					48.0						
	Cooked in water; liquid discarded.					48.0						161
	Steamed.					48.0						
	Cooked.					48.0						
	Cooked.					48.0						
	Average; 6 samples; New York; dye titration.					65						280

Canned Various parts	Germany; dye titration. India; dye titration: Leaves. Skin.	0 97 366 168.2 0	225 41	161
Kolanut (see Citrus fruit) Lamb	China; dye titration. Loin chop, lean portion; U. S. A.; rat-growth method. do. Leg of lamb; U. S. A.; rat-growth method. Leg of lamb; U. S. A.; rat-growth and microbiological methods, respectively. Leg of lamb; U. S. A.; microbiological method. Lean, roasted; breadyard method.	258 237 7436 7436 1150	360 280	28 28 19 182 133 133 11
Various organs (see Various Fruit) Leek Liver	Leaves; Germany; dye titration: Fresh. Dried. Do.; rat-growth method. Do.; rat-growth method. Market sample; bleached; U. S. A.; dye titration.	15.4 18.2 18.7 18.0	15.4 18.2 18.7 18.0	39 200 211 34
Lemon (see Citrus fruit) Lentil	Mature seeds; cooked; Washington, D. C., market sample; rat-growth method. Dried; rat-growth method. Dried; rat-growth method. England; breadyard method. England; breadyard method. India; dye titration: Dried seeds. Spouted seeds.	435 630 510 15.0 14 65.3 13 19 15 14	28 (*) 11 209 1 280 34 280 280	28 (*) 11 209 1 280 34 280 280
Lettuces Butterhead	Salamander; freshly harvested, average, 5 samples; New York; dye titration. Tousin; half; eaten fresh; Ohio; dye titration. White Boston; freshly harvested; average, 7 samples; New York; dye titration. New York; dye titration. Freshly harvested; average, 6 samples. Freshly harvested; average, 2 samples. Samples, 10 days at 1-3° C.; average, 2 samples. Freshly harvested; average, 2 samples. Average, 2 samples.	2.6 15.0 14 65.3 13 19 15 14	2.6 15.0 14 65.3 13 19 15 14	1 1 280 34 280 280 126
Ces or Roussine	Freshly harvested; average, 2 samples.	14	14	280
		8	8	126

* Unpublished data, Bureau of Home Economics.
† Values calculated from author's data.

† Values on cooked- or processed-weight basis.
‡ Values on raw-weight basis.

International Unit values were calculated from carotene analyses or included carotene analyses. Values on raw-weight basis. This figure may be significantly affected by method of sampling because of oxidative enzymes.

Vitamin values per 100 grams of edible portions of foods—Continued

Item	Description of sample (2)	Vitamin A value (3a) (3b)	Thiamin (vitamin B ₁) (4a) (4b)	Ascorbic acid (vitamin C) (5a) (5b)	Vitamin D (6a) (6b)	Riboflavin (7a) (7b)	Refer- ences (8)
Lettuce.—Con. Various parts—Con.							
	France; thiochrome and lumiflavin methods, respectively: Outer leaves.....	I. U. 20-30	Mg. 2.1-4.1	Mg. 44.9	I. U. 1. U.	Mg. 30-80	83
	Germany; dye titration: Outer leaves.....		8.8				
	Inner leaves of head.....		3.0				
	Head; Germany; dye titration: Outer leaves.....		7.5				279
	Inner leaves.....		2.6				
	Fresh; [Ohio]; dye titration.....		63.6				35
Wild Citrus fruit. Limes (see Citrus fruit). Limequat (see Citrus fruit). Lemon.....	India; dye titration: Fresh.....			45.9			
	Stored 34 days at 0°.....			25.0			1
Liver. Atk.....	India; dye titration.....			22			1
	Guillemot; Greenland; dye titration.....						134
Beef.....	Average and range, 3 samples, October-November; Boston market sample; rat-growth method: Pan-fried 10 minutes, no added fat.....	30, 200 12, 700- 41, 800 41, 800					129
	Europe; fluorometric method.....	155, 500					
	Sweden; fluorometric method.....						129
	U. S. A.; rat-growth method.....	287					296
	U. S. A.; rat-growth method.....	1 380					296
	U. S. A.; microbiological method.....						67
	Raw.....						28
	Fried.....						182
	Raw.....						
	Fried.....						
	U. S. A.; microbiological method.....						183
	U. S. A.; rat-growth method.....						242
	Fall.....						
	Winter.....						242

Calf	U. S. A.: rat-growth method. Cooked; U. B. A.: rat-growth method. Average and range, 4 samples; dye titration.	183	{ 27-40 }	47			55
	Thiochrome method.	17,250					20
	Spectrographic method.	121,700					201
	Cooked; tryptic acid method.	1,450					209
	Liver meat:						94
	Reduction method.						11
	Phenol method.						165
	Phenometric method.						250
	Live animal; commercial sample microbiological method.						243
	Two samples; October-November, Boston market.	22,900					129
	From 11 to 15 weeks old; 29 weeks old; last 23-30 weeks before slaughter; Pennsylvania; losses 7.	136,300					101
	Average and range, samples from municipal slaughterhouse.		{ 40.5 }	{ 17 }			174
	U. S. A.: rat-growth method.		{ 30-40 }	{ 11-22 }			227
	U. B. A.: rat-growth and microbiological methods, respectively.	1,151					182; 163
	U. S. A.: microbiological method.						153
Chicken	From Singo Comb White Leghorn; average and range, 10 samples, New York; fluorometric method.		{ 33 }	9.5			55
	Average and range, 7 samples; dye titration.		{ 19-40 }				251
	Resonance method.	186					46
	Thiochrome method.						209
	On ration containing 1 mg. of riboflavin per gm.						125
	On ration containing 6.9 mg. of riboflavin per gm.						41
	U. S. A.: titration.	140,300					64
	U. B. A.: spectrographic method.		37.7				261
	Average and range, 5 flocks from 12-week-old chickens; Europe; dye titration.		{ 37.9-53 }				22
	U. B. A.: dye titration.		28				138
	U. S. A.: dye titration.	500,000					
	Chick raised to 3 months on ascorbic acid deficient ration; dye titration.		30.2				

† Values calculated from authors' data.

† Values on raw-weight basis.

† Values on cooked- or processed-weight basis.

Vitamin values per 100 grams of edible portions of foods—Continued

[illegible]

[illegible]

Values per 100 ml.

Kansas: fluorometric method:	
Average for 8 Ayrshire cows, 14-6 months after parturition.	1116
Average for 10 Ayrshire cows, 6-10 months after parturition.	1116
Average for 4 Guernsey cows, 14-5 months after parturition.	1154
Average for 4 Guernsey cows, 5-10 months after parturition.	1151
Average for 9 Holstein cows fed without pasture, 10-12 months after parturition.	1124
Average for 4 Holstein cows fed without pasture, 5-10 months after parturition.	1135
Average for 11 Holstein cows; ordinary ration pasture, 7/8-8 months after parturition.	1129
Average for 8 Holstein cows; ordinary ration pasture, 5-10 months after parturition.	1133
Average for 10 Jersey cows, 14-5 months after parturition.	1100
Average for 10 Jersey cows, 6-10 months after parturition.	1133
New York State: fluorometric method:	
Average and range, 9 analyses; Ayrshire cows, barred-fed.	1169
Average and range, 10 analyses; Ayrshire cows, pasture-fed.	1126-268
Average and range, 4 analyses; Brown Swiss cows, barred-fed.	1197
Average and range, 4 analyses; Brown Swiss cows, pasture-fed.	1157
Average and range, 5 analyses; Brown Swiss cows, barred-fed.	1180-205
Average and range, 14 analyses; Guernsey cows, barred-fed.	1201-203
Average and range, 14 analyses; Guernsey cows, pasture-fed.	1191
Average and range, 22 analyses; Holstein cows, barred-fed.	1106-254
Average and range, 22 analyses; Holstein cows, pasture-fed.	1141-252
Average and range, 24 analyses; Jersey cows, pasture-fed.	1119-244
Average and range, 24 analyses; Jersey cows, pasture-fed.	1154
Average and range, 74 analyses; mixed herd, pasture-fed.	1227
Average and range, 76 analyses; mixed herd, pasture-fed.	1196-320
Average and range, 83 analyses; composite commercial samples of winter milk.	1116-294
Average and range, 50 analyses; composite commercial samples of summer milk.	1134-217
Most frequently observed value of milk from all cows.	1106-227

Values per 100 ml

Vitamin values per 100 grams of edible portions of foods—Continued

Item	Description of sample	Thiamin A value	Thiamin (vitamin B ₁)	Ascorbic acid (vitamin C)	Vitamin D	Riboflavin	References (8)
(1)	(2)	(3a)	(4a)	(5a)	(6a)	(7a)	(8)
Milk—Continued. Feed—Continued. Whole—Con.	Raw, average and range, morning samples from cows on dairy ration containing green feed; August-September; Pennsylvania; dry titration:						
	Ayrshire			Mg. 35 0.88 1.70 1.05 2.3			
	Brown Swiss			1.37 1.55 1.05 1.33 1.4			
	Guernsey	I. U.	Mg.	1.05 1.33 1.4			
	Holstein	I. U.	Mg.	1.05 1.33 1.4			
	Jersey			2.65 1.84 2.03 1.68 1.46 2.02 1.71 1.54 3.18			
	Raw, samples tested directly after milking; January; Wisconsin; dry titration:						
	From Guernsey; range for 3 days; cows pastured in summer.						
	From Holstein; range for 3 days; cows pastured in summer.						
	From Jersey; range for 3 days; cows pastured in summer.						
Kansas	4 Guernsey cows on alfalfa, silage, and grain ration. Average, 3 weeks.						
	4 Guernsey cows on spring pasture, 3 weeks.						
	Range, 11 Holstein cows on alfalfa, hay, silage, and grain ration.						
	Range, 11 Holstein cows on ryegrass 2 weeks.						
	Average, 4 Holstein cows on spring pasture 3 weeks.						

[illegible]

International Unit values were calculated from carotene analyses or included carotene analyses.

Vitamin values per 100 grams of edible portions of foods—Continued

Item	(1)	Description of sample	(2)	Vitamin A value	Thiamin (vitamin B ₁)	Ascorbic acid (vitamin C)	Vitamin D	Riboflavin	Reference
				(3a)	(4a)	(5a)	(6a)	(7a)	(8)
168B—Continued. Cow—Continued. Whole—Con.		From Jersey cows; (England); rat-growth method. Raw; average, 823 analysed from 63 Holstein, Jersey, Guernsey, and Ayrshire cows; Kansas; dye titration method. From 2 Shorthorn cows; England; rat-curative method. Summer ration: Cows given fresh grass and kept indoors. Winter ration: Cows kept indoors. Cows kept outdoors. From Shorthorn cows; England; dye titration: A feed 14 hour exposure to sunlight in a pint bottle. Range from Michigan dairies; cows pastured as usual; conditions permitted; rat-curative method. Range, July-September 1934: Cows without supplement, 1934: Range, May-June 1934: From herd of about 150 cows on diet of grain, hay, corn and silage; cows pastured as usual; conditions permitted; rat-curative method: Range, May-June 1934: 1 U. of vitamin A per cow per day; Massachusetts; rat-growth method: Cows receiving no supplement; feeding 30,000 I. U. vitamin A per cow per day; 1936. Cows without supplement; 1937: feeding 30,000 I. U. vitamin A per cow per day. 1 U. vitamin A per cow per day; 1937. Raw; evening samples; titrated within 2 hours; dried. From cows on dry ration and silage mid-March-May. From cows on pasture late March-May. From cows on pasture late May-Mid-June; May		I. U. 940	Meg.	Mg. 2.55	I. U. 1.70 0.53 0.93 2.60	Meg.	46 284 284 37 151 19 6 221

[illegible]

International Unit values were calculated from carotene analyses or included carotene analyses.

Values per 100 ml.

Vitamin values per 100 grams of edible portions of foods—Continued

Item (1)	Description of sample (2)	Vitamin A value (3a)	Thiamin (vitamin B ₁) (4a)	Ascorbic acid (vitamin C) (5a)	Vitamin D (6a)	Riboflavin (7a)	Refer- ences (8)
MBE—Continued. Cov.—Continued. Fluid—Con. Whole—Con.	Grade A, raw, from college herd; Michigan; dye titration:						
	Winter season:	I. U.	I. U.	Mg.	I. U.	Mcg.	
	1-day storage.			16.48			
	2-day storage.			16.18			
	3-day storage.			16.26			
	4-day storage.						
	Spring:			11.05			
	1-day storage.			10.5			
	2-day storage.			10.34			
	3-day storage.			10.18			
	4-day storage.						
	Summer season:			10.85			
	1-day storage.			10.64			
	2-day storage.			10.51			
	3-day storage.			10.33			
	4-day storage.						
	Autumn season:			10.77			
	1-day storage.			10.25			
	2-day storage.			10.25			
	3-day storage.			10.15			
	4-day storage.						
Holder pasteurized, pooled samples of 30 pro- ducers; dye titration:	Winter season:			10.99			
	1-day storage.			10.55			
	2-day storage.			10.31			
	3-day storage.			10.09			
	4-day storage.						
	Spring:			11.25			
	1-day storage.			10.7			
	2-day storage.			10.40			
	3-day storage.			10.22			
	4-day storage.						
	Summer season:			11.90			
	1-day storage.			10.95			
	2-day storage.			10.75			
	3-day storage.			10.55			
	4-day storage.						
	Autumn:			11.30			
	1-day storage.			10.81			
	2-day storage.			10.65			
	3-day storage.			10.45			
	4-day storage.			10.34			

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Vitamin values per 100 grams of edible portions of foods—Continued

Item (1)	Description of sample (2)	Vitamin A value (3a)	Thiamin (vitamin B ₁) (4a)	Ascorbic acid (vitamin C) (5a)	Vitamin D (6a)	Riboflavin (7a)	Refer- ences (8)
Milk—Continued. Condensed— Fluid—Con. Whole—Con.	Kansas; dye titration: Raw, stored 9 hours at 40° F. Raw, stored 1 day at 40° F. Pasteurized 30 minutes at 145° F. Pasteurized 30 minutes at 145° F., stored 9 hours at 40° F. Pasteurized 30 minutes at 145° F., stored 1 day at 40° F.	I. U.	Mcg.	Mg.	I. U.	Mcg.	286
	Raw			11.75			
	Raw, stored 1 day at 40° F.			11.25			
	Pasteurized 30 minutes at 145° F.			11.25			
	Pasteurized 30 minutes at 145° F., stored 9 hours at 40° F.			11.25			
	Pasteurized 30 minutes at 145° F., stored 1 day at 40° F.			11.02			
	U. S. A.; dye titration: Raw			31.0			145
	Vat pasteurized			30.4			
	Pasteurized by electrical conductivity method			31.0			
	Pasteurized by flash contact method			31.0			
	U. S. A.; dye titration: Raw, stored in bottle 3 days at 1°-3° C. Raw, stored in bottle 7 days at 1°-3° C. Raw, stored in bottle 3 days at 1°-3° C. Free of oxygen, stored in bottles 3 days at 1°-3° C. Free of oxygen, stored in bottle 7 days at 1°-3° C. Pasteurized, stored in bottle 3 days at 1°-3° C. Pasteurized, stored in bottle 7 days at 1°-3° C. Pasteurized, free of oxygen, stored in bottle 3 days at 1°-3° C. Pasteurized, free of oxygen, stored in bottle 7 days at 1°-3° C.	I. U.	Mcg.	Mg.	I. U.	Mcg.	
	Wisconsin; modified dye titration: After spray vat (siech, vertical) pasteurization for 30 minutes at 150° F. After spray vat (horizontal) pasteurization for 30 minutes at 145° F. After spray vat (stainless steel, horizontal) pasteurization for 30 minutes at 145° F. Raw, pasteurization in stainless steel vat 30 minutes at 150° F. After homogenization at 150° F. and 2000 p.s.i. for 1 minute Pasteurized 30 minutes at 150° F.			31.0			106
				31.0			
				32.1			
				31.0			
				31.4			
				31.7			294
				31.7			

[illegible]

Values per 100 ml.

[illegible]

[illegible]

Values per 100 ml.

Values on raw-weight basis.

Unpublished data, Bureau of Home Economics.

Unpublished data from H. J. Preblud, H. M. Hodge, N. M. Erb, and F. M. Hildebrandt, U. S. Industrial Chemicals, Inc., Burlington, Mass.

Vitamin values per 100 grams of edible portions of foods—Continued

Item (1)	Description of sample (2)	Vitamin A values		Thiamin (vitamin B ₁)		Ascorbic acid (vitamin C)		Vitamin D		Riboflavin		Refer- ences (3)
		I. U.	(3a)	I. U.	(4a)	Mg.	(5a)	I. U.	(6a)	Mg.	(7a)	
Muskaden—Con.	Banana, North Carolina market; dye titration: Average, 18 melons.					23.9						192
	Average, 12 ripe melons.					23.9						192
	Bender's Surprise; average, 6 samples; New York; dye titration.					11.9						280
	Bender's Surprise; freshly harvested; Ohio, dye titration.					23						274
	Bottomly; freshly harvested; Ohio; dye titration.					24						274
	Copper's Sweetheart; average, 4 samples; New York; dye titration.					35						280
	Delicious; freshly harvested; Ohio; dye titration.					32						274
	do; Ohio; freshly harvested; Ohio; dye titration.					32						274
	Globe of Gold; freshly harvested; Ohio; dye titra- tion.					30						274
	Globe of Gold; freshly harvested; Ohio; dye titra- tion.					38						280
	Golden Marvel; average, 4 samples; New York; dye titration.											
	Hale's Best; North Carolina market; dye titration: Average, 18 melons.					24.5						192
	Average, 12 ripe melons.					24.9						192
	Average, 3 very ripe melons.					26.0						274
	Hale's Best; freshly harvested; Ohio; dye titration.					33						85
	Hale's Best; average and range, 3 samples; Texas; dye titration.					33.3						85
	Heart of Gold; freshly harvested; Ohio; dye titra- tion.					35						274
	Heart of Gold; average and range, 6 samples; Texas; dye titration.					24.3						85
	Honey Hall; Texas; dye titration.					17.7-32.1						85
	Honey Dew; U. S. A.; dye titration.					34.3						85
	Honey Dew; U. S. A.; dye titration.					94.2						280
	Honey Rock; average, 4 samples; New York; dye titration.					48						274
	Honey Rock; freshly harvested; Ohio; dye titra- tion.					41						274
	Improved Hale's Best; freshly harvested; Ohio; dye titration.					37						274
	Improved No. 45; freshly harvested; Ohio; dye titration.					16						274
	Large and Medium Redensack; freshly harvested; Ohio; dye titration.					36						274

Market King; freshly harvested; Ohio; dye titration.	57
Netted Gem; Texas; dye titration.	37.1
New Wonderful; average; 4 samples; New York; dye titration.	24
Perfecto; North Carolina market; dye titration: Average, 17 melons.	37.1
Average, 5 very ripe melons.	32.5
Polish No. 1; garden fresh; Ohio; dye titration.	32.5
Rock melon; Honey Dew variety; freshly picked; New York; dye titration.	34
Rock melon; freshly picked; western Australia; dye titration.	37.4
2, 300	21
Rocky Ford; Washington, D. C. market; Colorado; rat growth method.	19
Rocky Ford; North Carolina market; dye titration: Average, 17 ripe melons.	31.2
1 very ripe melon.	32.6
Rocky Ford; average and range, 10 samples; ripe; dye titration.	25.4
Rocky Ford; North Carolina market; dye titration.	{28.1-35.2}
Rope.	
Fair flavor; average and range, 6 samples.	{31.0}
Poor flavor; 1 melon.	{23.4-37.9}
Almost ripe; fair flavor.	26.3
Green; poor flavor.	22.6
Very ripe; poor flavor.	25.4
Rocky Ford; average and range, 6 samples; Texas; dye titration.	{19.3-34.3}
Sugar Cup; freshly harvested; Ohio; dye titration.	26.4
Wood's; Perfecto; North Carolina market; dye titration: Average, 13 melons.	56
Average, 11 ripe melons.	28.9
Average, 2 very ripe melons.	29.1
Wm. Woods' Perfecto, Bala, and	27.5
Banana; 99 samples; North Carolina market; dye titration.	13.3
New York; fluorometric method.	{12.2}
Large melons; average and range, 3 samples; Texas; dye titration.	{7.3-18}
Small melons; growth method.	73
	57

Vitamin values per 100 grams of edible portions of foods—Continued

[illegible]

	Raw	Commercial sample, U. S. A.; rat-growth method:			
Cooked					
Fermentation method:					
Anthony; obtained Minnesota.				680	4839
Brunker C. I. No. 2674; obtained Kansas.				820	
Columbia C. I. No. 2627; obtained Kansas.				690	
Dunlop C. I. No. 1247; Idaho, obtained Washington, D. C.				750	
Elyington C. I. No. 708; Idaho, obtained Washington, D. C.				630	
Ferguson D. C. No. 3297; obtained Kansas.				570	
Gopher; obtained Minnesota.				800	
Huron; obtained Michigan.				1,650	
Jones; obtained Michigan.				700	
Ladd; obtained Michigan.				570	
Iowa 444; obtained Michigan.				650	
Iowa C. I. No. 847; Iowa, obtained Washington, D. C.				580	
Kanola C. I. No. 830; obtained Kansas.				820	
Laurie C. I. No. 205; Idaho, obtained Washington, D. C.				550	
Minton, D. C. No. 787; Idaho, obtained Washington, D. C.				600	
Mirus; obtained Minnesota.				1,000	
Richard C. I. No. 787; Idaho, obtained Washington, D. C.				1,480	
Ruston; obtained Minnesota.				900	
Silvermine C. I. No. 650; North Dakota, obtained Washington, D. C.				570	
Vairied Washington, D. C.				700	
Ward; obtained Michigan.				600	
Worthy; obtained Michigan.				700	
Brecker; England; thiostrome method.				285	
U. S. A.; rat-growth method.				300-570	
Dry; [England]; bradyardin method.				975	
Commercial sampler "quiet-cooking"; U. S. A.; rat-growth methods.				810	
Long Green; garden fresh; Ohio; dye titration.					
U. S. A.; rat-growth method.				126	14.7
U. S. A.; rat-growth method.				1,360	
cooked; U. S. A.; rat-growth method.					
Vegetable churned with milk; U. S. A.; rat-growth method.				6	
Green, Spanish; bottled in New York; rat-growth method.				1,000	
Basmati; India; rat-growth method.					
Oleum grain.					
Whole grain.					
Oatmeal.					
Oltra.					
Oleomargarine.					
Oltre.					
Oil.					

¹ International Unit values were calculated from carotene analyses or included carotene analyses.² Values on cooked- or processed-weight basis.

Values on raw-weight basis.

Vitamin values per 100 grams of edible portions of foods—Continued

Item	Description of sample (2)	Vitamin A value (3a) (3b) (3c)	Thiamin (vitamin B ₁) (4a) (4b)	Ascorbic acid (vitamin C) (5a) (5b)	Vitamin D (6a) (6b)	Riboflavin (7a) (7b)	Error- euses (8)
	Bermuda; Average and range, 6 samples; Texas; dye titration.	I. U. I. U.	Mcp. Mcp.	Mcp. $\left\{ \begin{array}{l} 7.3 \\ 4.5-9.9 \end{array} \right\}$	I. U. I. U.	Mcp. Mcp.	85 29
	Bermuda, grown near Washington, D. C.; rak- ed; dye titration.	0					4
	Chinese; China; dye titration.			37.2			
	Sweet Spanish; Montana; rat growth method and dye titration, respectively.						
	Cut into sections and boiled 15 minutes.			12.7			177
	Stored 6 months.		33	12.5			
	Sections, cut into sections and boiled 15 minutes.		7.30	8.5			
	Average and range; Argentina; dye titration.			$\left\{ \begin{array}{l} 26 \\ 24.7-4 \end{array} \right\}$			216
	England; dye titration.			9.7			200
	Raw; average, 1 batch.			5.6			
	Raw; average, 1 batch.			8.9			
	After commercial canning, liquid discarded.			2.5			
	Liquid from cooked sample.			2.7			
	[England; thiocrome method]						
	Raw.	24					200
	Stewed; England; bromogarcia method		1				13
	Germany; dye titration.	100-150		9.4			
	Dried.			32.0			59
	---do---			4.97			
	Large variety; India; dye titration.						25
	Cooked.			8.6			
	Medium variety; India; dye titration.						25
	Raw.			7.3			
	Cooked.			2.5			
	Small variety; India; dye titration.						
	Raw.			6.6			25
	Young and fresh; India; dye titration.			11.9			1
	Stewed; India; dye titration.			10.5			12.1
	Raw; thiocrome method.			Trace			20.4
	Rumans; dye titration.			5.5		125	20.4

Dried	Brown; mature; U. S. A.; dye titration.					14.4			34
	Winter; globe; U. S. A.; rat-growth method					32.0			28
Scaps	Germany; dye titration.					11.3			59
	India; dye titration.					16.57	16.19		25
Various parts	Raw.								
	France; thiodrome and lumiflavin methods, re-								
	spectively:								
	(a) green.							5	83
	Bulk portion.							15	
Orange (see Citrus fruit).	Woodfield; extra standard; Washington, D. C.,	210							29
Oyter.	market; rat-growth method.								
	Whole, 94.6 percent moisture; Japan; lumiflavin								248
	method.							22.6	
Frozen	Long Island; rat-growth and rat-curative methods,								
	respectively:								
	(a) rat-growth.	300	1,238						281
	Cooled.							5	
Palm nut oil.	"Corozo Negro"; Panama; cortex oil; rat-growth	15,800							27
	method.								
Panacea!	"Corozo Gallinazo"; Panama; rat-growth method.	4,800							27
Beef.	U. S. A.; rat-growth and microbiological methods,		1,321					1,550	182,183
	respectively:								
	(a) rat-growth.					14		1,610	190
	U. S. A.; microbiological method.							1,610	183
	U. S. A.; microbiological method.								244
	do.								184
Papaya.	Somangka variety; Java; dye titration.					33.9			
	Ripe; average and range, 20 samples; Hawaii; dye					38.9-115.7			
	titration.								
	Raw.								
	Very green, no yellow in flesh.					26.6			184
	Green, slight yellow in flesh.					27.3			
	Light green, no yellow in flesh.					27.3			
	Ripe, flesh yellow and soft.					61.8			184
	Hawaii; rat-growth methods.	2,500	24					18	201
	Raw.								201
	Hawaii; rat-growth method.					48.1			211
	Hawaii; dye titration.					34.6			211
	Java; dye titration.					41.0			211
	do.					41.0			
	India; dye titration.					41.6			211
	Pulp.					41.6			
	Skin.					11.6			
Various parts.	[Japan; modified dye titration:								
	Pulp.					70.5			91
	Skin.					116.5			

* Values on raw-weight basis.

† Values on cooked- or processed-weight basis.

‡ Values calculated from authors' data.

Vitamin values per 100 grams of edible portions of foods—Continued

Item	Description of sample	Vitamin A value	Thiamin (vitamin B ₁)	Ascorbic acid (vitamin C)	Riboflavin	Refer- ences
(1)	(2)	(3a) I. U.	(3b) I. U.	(3c) Mcg.	(7a) I. U.	(8)
Apple	Pods; Germany; dye titration: Fresh; 100 g. titration			Mfg. 2		59
	Pods; green; Rumana; dye titration			160		204
	Pods; red; Rumana; dye titration			270		204
	Pods; roasted; Rumana; dye titration			1230		205
Paradise apple	"Dierck Bull"; Jave; dye titration			42.3		244
	"Dierck padan"; Jave; dye titration			25.3-26.5		244
Parley	Paramount; garden fresh; Ohio; dye titration			109.4		34
	Zyklop; leaves only; Germany; modified dye titration			262		34
	Average and range; Argentina; dye titration			178		32
	Germany; dye titration:			160-200		210
	Dried			262.0		
Praslin	Tan; dried titration			7443.0		50
	New York; dye titration			500.8		211
	U. S. A.; dye titration			198		260
	Hollow Crown; garden fresh; Ohio; dye titration			376		260
	England; thochrome method			32.5		34
	Washington; British market; cooked; Maryland;					30
	Local market sample; average and range; Montana; dye titration:					
	Tested in lab.					
	Raw, unpared			32.7		
	Boiled whole, unpared			29.2-38.5		
	Fried at once after boiling, unpared			29.4		
				38.5		
				23.7		
				27.5		
	Raw, unpared			38.1		
	Boiled, unpared and sliced			18.2-22.1		
				17.8		

	176	280	176
Fried at once after boiling, paring, and slicing.			{ 21.0 24.4 25.1 }
Tested in spring after being in ground all winter:			
Raw, unpared	{ 5.5-12.7 0.0 0.0 }		{ 9.7 14.6-13.4 16.2 13.7-11.1 }
Whole, boiled, unpared			
Fried after boiling			
Raw, unpared	{ 5.5-11.3 0.0 0.0 }		{ 9.8 14.5-9.3 10.7 15.6-14.4 }
Boiled, pared, sliced			
Fried at once after boiling, paring, and slicing.		40	
New York, dye titration:			
After 1-month storage in pit covered with solid top and straw mat.			31.9
After 1-month storage in pit covered with straw mat.			16.5
After 1-month storage in pit covered with straw mat.			20.4
After 1-month storage at 1°-3° C			20.4
After 1-month storage at 1°-3° C			12.9
After 1-month storage at 1°-3° C			16.7
After 1-month storage at 7° C			16.7
Top end; average and range; local market sample; Montana; dye titration.			10.3
Autumn.			
Spring.			
Tip end; average and range; local market sample; Montana; dye titration.	{ 20.1-25.3 25.3 8.3 }		
Autumn.	{ 5.8-10.9		
Spring.			
Sliced (raw); average and range; local market sample; Montana; dye titration.	{ 20.3-40.2 35.7 4.8-13.8 }		
Autumn.			
Spring.			
Tip end; average and range; local market sample; Montana; dye titration.	{ 22.2 18.7-32.1 5.9-17.9 }		
Autumn.			
Spring.			

² Values on cooked- or processed-weight basis.⁴ Values on raw-weight basis.

Vitamin values per 100 grams of edible portions of foods—Continued

Item	(1)	Description of sample	Vitamin A value		Thiamin (vitamin B ₁)		Ascorbic acid (vitamin C)		Vitamin D		Riboflavin		Reference
			I. U.	(3b)	(4a)	(4b)	(5a)	(5b)	(6a)	(6b)	(7a)	(7b)	
171	Continued. Green—Con.	Little Marvel; garden fresh; Ohio; dye titration.											171
		Mammoth Melling Sugar; New York; dye titration.											
		Immature.											
		Mature.											
		Mature.											
		Mature; medium; New York; dye titration.											
		Miracle; medium; New York; dye titration.											
		Overhead; New York; dye titration.											
		President Wilson; large; New York; dye titration.											
		Size No. 6.											
		Size No. 6.											
		Size No. 2.											
171		Immature.											171
		Immature.											
		Perfect; medium; New York; dye titration.											
		President Wilson; large; New York; dye titration.											
		Immature.											
		Immature.											
		Mature.											
		Perfect; medium; New York; dye titration.											
		President Wilson; large; New York; dye titration.											
		Immature.											
		Immature.											
		171		President Wilson; large; New York; dye titration.									
Stratagem; large; New York; dye titration.													
Size No. 6.													
Size No. 6.													
Size No. 6.													
Size No. 2.													
Size No. 2.													
Size No. 1.													
Size No. 1.													
Immature.													
Immature.													
171				Mature.									
		Mature.											
		Surprise; small; New York; dye titration.											
		Surprise; small; New York; dye titration.											
		Thomas; large; Maine; fast-growth method.											
		Thomas; large; Maine; fast-growth method.											
		Processed 38 minutes at 115.9° C. in No. 2 cans											
		after blanching 50 seconds at 100° C.											
		1.											
		1.											
		1.											

Vitamin values per 100 grams of edible portions of foods—Continued

Item (1)	Description of sample (2)	Vitamin A value		Thiamin (vitamin B ₁)		Ascorbic acid (vitamin C)		Vitamin D		Riboflavin		Refer- ences (8)
		(3a)	(3b)	(4a)	(4b)	(5a)	(5b)	(6a)	(6b)	(7a)	(7b)	
Fresh—Continued. Green—Continued.	New York; dye titration—Continued.											
	Fresh.	I. U.	I. U.	Mg.	Mg.	Mg.	Mg.	I. U.	I. U.	Mg.	Mg.	
	Blanched in Scott blancher 60 seconds at 82° C.					25	21					
	Blanched 40 seconds at 82° C.						21					
	Blanched 60 seconds at 93° C.						21					
	Blanched 130 seconds at 82° C.						21					
	Blanched 40 seconds at 82° C.						20					
	Blanched 40 seconds at 82° C.						20					
	Blanched 122 seconds at 88° C.						17					
	Blanched 154 seconds at 88° C.						17					
	Blanched 154 seconds at 88° C.						17					
	Blanched 154 seconds at 93° C.						16					
	Fresh.					25	19					139
Canned.	Blanched in Berlin-Chapman blancher 40 seconds at 103° C.						17					
	Blanched 60 seconds at 103° C.											
	Fresh.					23	15					
	Unblanched, frozen, stored 5 months at -4° C.					21	4					
	Blanched in water 60 seconds at 93° C., held 7 weeks at -4° C.											
	After 7 weeks at -4° C.											
	New York; dye titration.											
	Fresh.					23	28					83
	Held 3 hours at 4° C.						24					
	Held 3 hours at 27° C.						24					
	Average for 39 samples; Oregon and Washington; dye titration.											264
	U. S. A.; ret-growth method.			390		{ 18-40 }						8
	U. S. A.; ret-growth method.											136
	U. S. A.; microchemical method.											126
	U. S. A.; dye titration.					16						22
Canned.	Thomas Laxton, Maine; ret-growth method.			132								72
	Processed 35 minutes at 115.5° C. in No. 2 can after blanching 15 seconds.				177							
	Large, liquid discarded; England; dye titration.											200
	Immediately after commercial canning.					24.1						
	After 26-week storage at room temperature.						12.9					

[illegible]

Values on cooked- or processed-weight basis.

Values per 100 ml.

Values on raw-weight basis.

Vitamin values per 100 grams of edible portions of foods—Continued

Item (1)	Description of sample (2)	Vitamin A value		Thiamin (vitamin B ₁)		Ascorbic acid (vitamin C)		Vitamin D		Riboflavin (7b)	Refer- ences (8)
		(3a)	(3b)	(4a)	(4b)	(5a)	(5b)	I. U.	I. U.		
Figs—Continued Green—Continued, Frozen—Con.	Dwarf Almerian; sealed 1 minute at 95° C., frozen pack; Washington, dye titration.										260
	Dwarf Almerian; sealed 1 minute at 95° C., frozen pack; Washington, rat-growth method.										
	Raw	1,400									260
	Cooked		1,400								
	Extra dry Gradus; blanched 1 minute at 88°-93° C., frozen and stored; Washington, rat-growth method.			500							81
	Gradus; blanched 1 minute at 88°-93° C., frozen and stored; Washington, rat-growth method.			360							
	Improved Gradus; sealed 1 minute at 91° C., frozen and stored; Washington, rat-growth method.										81
	Laxton's Progress; sealed 1 minute at 92° C., frozen pack; Washington, dye titration.					26.4					
	Laxton's Progress; sealed 1 minute at 92° C., frozen pack; Washington, dye titration.					14.5					290
	Laxton's Progress; sealed 1 minute at 88°-93° C., frozen and stored; Washington, rat-growth method.			200							
	Laxton's Progress; sealed 1 minute at 92° C., frozen pack; Washington, dye titration.					19.7					260
	Laxton's Progress; sealed 1 minute at 92° C., frozen pack; Washington, dye titration.					18.0					
	Rogers 95; sealed 1 minute at 99° C., frozen pack; Washington, dye titration.			650							81
	Rogers 95; sealed 1 minute at 99° C., frozen pack; Washington, dye titration.			520							
	Stradegen; blanched 1 minute at 88°-93° C., frozen and stored; Washington, rat-growth method.										260
	Stradegen; blanched 1 minute at 88°-93° C., frozen and stored; Washington, rat-growth method.										
	Telephone frozen pack; Washington, dye titration.					17					260
	Thawed and analyzed immediately at 95° C.						14				
	Thawed, allowed to stand 1 hour at 25° C.						12				260, 81;
	Thawed, allowed to stand 1 hour at 25° C.						13				
	Thawed, allowed to stand in refrigerator 24 hours at 4° C.										260
	Telephone frozen pack; Washington, rat-growth and dye titration methods, respectively.	1,000		290		18.8					
	Blanched by sealing 1 minute at 99° C. in hot water.	1,000		330		21.9					260, 81;
	Blanched by sealing 1 minute at 99° C. in hot water.	71,000		280		18.5					
	Blanched by sealing 2 minutes at 99° C. in hot water.			210		11.0					260

Canned	Elberta, average and range, 3 samples; Texas; dye titration.....	{ 2.2 1.5-3.6 }				85
	Elberta, U. S. A.; dye titration.....	{ 17.4 17 }				74
	Elberta, freshly picked; western Australia, dye titration.....	{ 12.0 10.9-15.0 }				123
	Full Yellow Clearseed; Texas; dye titration.....	{ 4.0 1.0-7.0 }				85
	Green Cling; Texas; dye titration.....	{ 1.0 0.5-1.5 }				86
	Italian Peach; Germany; dye titration.....	{ 1.0 0.5-1.5 }				59
	Reamed.....	{ 1.0 0.5-1.5 }				189
	Canned in tin.....	{ 1.0 0.5-1.5 }				85
	Muir, California.....	{ 7.4 7-7.8 }				85
	White Clearseed; Texas; dye titration.....	{ 13.3 13-13.3 }				82
	Yellow Cling; Texas; dye titration.....	{ 4.10 4-4.10 }				82
	2. Division market sample, spectrographic method.....	{ 2.2 1.3-7.1 }				41
	Pist; China; dye titration.....	{ 1.0 0.5-1.5 }				85
	Green; France; thiocrome and luminol methods, respectively.....	{ 1.0 0.5-1.5 }				229
	Average and range, 27 varieties; Germany; dye titration.....	{ 1.0 0.5-1.5 }				201
Dried	India; dye titration.....	{ 1.0 0.5-1.5 }				25
	Yunnan; dye titration, rat growth method.....	{ 1.0 0.5-1.5 }				126
	U. S. A.; fluorimetric method.....	{ 1.0 0.5-1.5 }				125
	An early variety; market sample, western Australia; dye titration.....	{ 1.0 0.5-1.5 }				13
	Ripe; bradyardia method.....	{ 1.0 0.5-1.5 }				209
	Thiocrome method.....	{ 1.0 0.5-1.5 }				109
	Thiocrome method, average and range, 3 samples; U. S. A.; dye titration.....	{ 1.0 0.5-1.5 }				13
	In tin containers.....	{ 1.0 0.5-1.5 }				13
	In glass containers.....	{ 1.0 0.5-1.5 }				13
	Bradyardia method.....	{ 1.0 0.5-1.5 }				13
	Juice.....	{ 1.0 0.5-1.5 }				13
	Yellow; matured, underized; California, rat growth method.....	{ 1.0 0.5-1.5 }				13
	Yellow; Boston market, commercial sample, spectrographic method.....	{ 1.0 0.5-1.5 }				13
	U. S. A.; dye titration.....	{ 1.0 0.5-1.5 }				13
	Fresh; China; dye titration.....	{ 1.0 0.5-1.5 }				13
Frozen	Kernel.....	{ 1.0 0.5-1.5 }				13
	International Unit values were calculated from carotene analyses or included carotene analyses.....	{ 1.0 0.5-1.5 }				13
	Values on cooked- or processed-weight basis.....	{ 1.0 0.5-1.5 }				13
	Values per 100 ml.....	{ 1.0 0.5-1.5 }				13
	Values on raw-weight basis.....	{ 1.0 0.5-1.5 }				13
	Values on cooked- or processed-weight basis.....	{ 1.0 0.5-1.5 }				13
	Values per 100 ml.....	{ 1.0 0.5-1.5 }				13
	Values on raw-weight basis.....	{ 1.0 0.5-1.5 }				13
	Values on cooked- or processed-weight basis.....	{ 1.0 0.5-1.5 }				13
	Values per 100 ml.....	{ 1.0 0.5-1.5 }				13
	Values on raw-weight basis.....	{ 1.0 0.5-1.5 }				13
	Values on cooked- or processed-weight basis.....	{ 1.0 0.5-1.5 }				13
	Values per 100 ml.....	{ 1.0 0.5-1.5 }				13
	Values on raw-weight basis.....	{ 1.0 0.5-1.5 }				13
	Values on cooked- or processed-weight basis.....	{ 1.0 0.5-1.5 }				13

International Unit values were calculated from carotene analyses or included carotene analyses.

Values on cooked- or processed-weight basis.

Values per 100 ml.

Values on raw-weight basis.

Juice	Average and range, 3 samples; Texas dye titration						43.1	85
	Japan: dye titration						{ 32.4-53 }	
	France: dye titration; various exposures on tree and on different trees in same orchard						32.8-53.9	
	Fuyu variety, grown on different branches of same tree						48.9-55.1	185
	Fuyu variety, grown on different branches of a second tree						41.1-49.8	
Various parts	India, dye titration:							
	Inner skin						6.1	211
	Outer skin						NH	
Pickle	Glasgow: [England]; thiochrome method							209
	Sweet: [England]; thiochrome method							209
	Onion: [England]; thiochrome method							209
	Graham: [England]; thiochrome method							211
	India, dye titration						176.5	
	Dried mango, salted; India, dye titration						2.8	211
Pigeon	Fresh; China, dye titration						9.22	41
Various organs (see Liver).								
Pineapple	Dried; China, dye titration						2.43	41
	Sugar loaf; Washington, D. C., market; Florida; rat-growth method	ca 200						29
	Average and range; Argentina; dye titration						{ 43 }	216
	Boston market sample; spectrographic method	1 100					{ 25-60 }	82
	India, dye titration						62.9	211
	Freshly picked; western Australia; dye titration						19	123
	Rat-growth method	30						28
	Canned; thiochrome method							209
	Grated; frozen; Boston market sample; spectrographic method	1 55					3.30	82
Juice	India, dye titration						55.4	26
	Fresh; dye titration						75.9	211
	Coke; mercaptan caused; average and range, 3 brands; dye titration						{ 114 }	102
Canned							{ 310 }	3
							{ 7.0 }	102

1 International Unit values were calculated from carotene analyses or included carotene analyses.

2 Values on cooked- or processed-weight basis.

3 Values per 100 milligrams.

4 Values on raw-weight basis.

5 This figure may be significantly affected by method of sampling because of oxidative enzymes.

6 Unpublished data, Bureau of Home Economics.

Vitamin values per 100 grams of edible portions of foods—Continued

[illegible]

	Raw meat, processed in cans 85 minutes at 15 pounds pressure.	1,770	\$240						(*)
	do		\$245						
Canned	Lean flesh, Germany; chromatographic and col- orimetric method.								
	Rumack's dye titration.								
	Thiochrome method.								
	Ham; commercial samples; U. S. A.; rat-growth and microbiological methods, respectively.	1,425	\$50	1.90				87.6-91.4	253
	Ground lean pork shoulder mixed with 5-10 per cent nitrate added; commercially packed and pro- cessed in 12-ounce tins; U. S. A.; rat-growth method.	814						220	204 200 182-183
Cured	Ground lean pork, salt, sugar, pepper, and sodium nitrate added; commercially packed and pro- cessed in 12-ounce tins; U. S. A.; rat-growth method.	410							(*)
	Ground lean pork, salt, sugar, pepper, and sodium nitrate added; commercially packed and pro- cessed in 12-ounce tins; U. S. A.; rat-growth method.	536							(*)
	Smoked ham; commercial sample; U. S. A.; rat- growth and microbiological methods, respec- tively.								
	Raw	1,872	\$185					250	182-183
	Fried, 100 commercial samples; U. S. A.; microbiological method.							250	183
Various organs (see notes on page 157, Sausage, etc.). See also bacon.	Ham; thiochrome method.	720						210	207
	Ham, lean, 1/4-inch slices; U. S. A.; rat-growth method.								
	Raw	1,485							(*)
	Fried		\$1,659						(*)
	Ham, lean, boiled; bradyard's method.		\$1,660						11
Potato.	Ham, lean; U. S. A.; rat-growth method.	1,428							28
	Salted; Washington, D. C. market; rat-growth method.	NH							29
	Ham, cooked; [England]; thiochrome method.		\$570						209
	Thiochrome method.	48							200
	Smoked; thiochrome method.		\$535						208
Peanut.	Arran Banner Scotland; dye titration:								241
	Harvested Aug. 31								
	Harvested Sept. 14								

* Values on cooked- or processed-weight basis.

* Values on raw-weight basis.

* Values on raw-weight basis, Home Economics.

* Values calculated from authors' data.

Vitamin values per 100 grams of edible portions of foods—Continued

Item (1)	Description of sample (2)	Vitamin A value		Thiamin (vitamin B ₁)		Ascorbic acid (vitamin C)		Vitamin D		Riboflavin		Refer- ences (8)
		(3a)	(3b)	(4a)	(4b)	(5a)	(5b)	(6a)	(6b)	(7a)	(7b)	
		I. U.	I. U.	Meg.	Meg.	Mg.	Mg.	I. U.	I. U.	Meg.	Meg.	
Potato—Continued.												
	Edegrads, Germany; dye titration: Early March: Pared, boiled 15 minutes in salt water. Pared, boiled 5 minutes, then kept at cook- ing heat for 3½-4 hours. April: Raw. Pared, boiled immediately. Unpared, boiled. Edegrads, Germany; dye titration: Early March: Pared, boiled immediately. Edegrads, Germany; dye titration: Raw. Pared, steamed. Unpared, steamed. Pared, boiled. Edegrads, range, samples from 4 places, Germany: Early March: Large. Small. Edegrads, September, Germany; dye titration: Raw. Pared, boiled immediately. Unpared, steamed. Flava, range, dye titration: Raw. Unpared, steamed. Pared, steamed. Pared, boiled. Flava, range, samples from 4 places, Germany; dye titration: Raw. Small. Golden average, 8 tubers; dye titration: Baked. Boiled in skins. Golden average, dye titration: Baked. Stored 5 months, baked. Pared, boiled. Stored 5 months, pared, boiled.					18.3 9.8 6.1 13.85 16.9 11.6 8.6 6.2 5.6 5.3-8.2 5.5-7.8 23.5 18.9 23.5 8.2 7.4 5.6 5.2-8.5 6.8-9.5 13.1 16.1 16.1 25.9 23.9 24.2 24.6						271 210 220 220 271 220 230 166 166

amin values per 100 grams of edible portions of foods--Continued

Item (1)	Description of sample (2)	Vitamin A value (3a) (3b)		Thiamin (vitamin B ₁) (4a) (4b)	Ascorbic acid (vitamin C) (5a) (5b)	Vitamin D (6a) (6b)		Riboflavin (7a) (7b)	Refer- ences (8)	
		I. U.	I. U.	Meg.	Meg.	I. U.	I. U.	Meg.	Meg.	
Potato—Continued.	Green Mountain; U. S. A.; dye titration: New, raw Pared, boiled Cooking liquor from above (per 100 gm. raw potatoes)								224	
	Green Mountain; U. S. A.; dye titration: New, raw Pared, cooked in "wings" cooker After storage 10 days at 35°F. C. As purchased on market								224	
	Green Mountain; U. S. A.; dye titration: New, raw After exposure to 30-40 percent carbon dioxide for 25 days								224	
	Green Mountain; U. S. A.; dye titration: Baked Stored 3 months, baked Sliced, boiled								266	
	Green Mountain; U. S. A.; dye titration: Sliced, boiled Stored 5 months, pared, boiled								166	
	Green Mountain, average, 8 tubers; U. S. A.; dye titration: Raw Pared Boiled in skin									166
	Green Mountain; new; U. S. A.; dye titration: Green Mountain; stored 10 months; U. S. A.; dye titration: Green Mountain; Washington, D. C., market sample; dye titration: Pared, boiled Made into chips									21
	do. Raw Made into chips Made into chips and stored 1 week at room temperature Made into chips and stored 1 week at room temperature									(9)

Houma; average, 8 tubers; dye titration:
Baked
Potatoes in skins
Iowa; baked; U. S. A.; dye titration:
Immediately after baking
Skin opened and fat band 30 minutes.
In Iowa, middle of April, Germany, dye titra- tion:
Raw
Cooked 15 minutes in salted water
Irish Cobbler; Kentucky;
Raw
Boiled in skins
Stored 24 hours at 40° F.
Creamed
Boiled, home-fried.
Irish Cobbler, Maine; dye titration:
At 4.3° C.
Stored 6 weeks at 15.5° G., then for 19 weeks at 4.3° C.
Irish Cobbler, October, Maine; rat-growth method:
Cooked
Irish Cobbler; stored at 15.5° G.; Maine; dye titration:
Baked
Raw
Unpared; steamed
Unpared; boiled
Raw
Pared; steamed in pressure cooker
Cooking liquor from above, per 100 gm. raw potato.
Raw
Pared; boiled
Cooking liquor from above, per 100 gm. raw
Irish Cobbler; dye titration:
Grown in Massachusetts
Grown in Virginia; 3 months storage
Grown in Kentucky
Grown in Maryland
Grown in New York

Values on cooked- or processed-weight basis.

Values on raw-weight basis.

Unpublished data, Bureau of Home Economics.

Vitamin values per 100 grams of edible portions of foods—Continued

[illegible]

Vitamin values per 100 grams of edible portions of foods—Continued

Item (1)	Description of sample (2)	Vitamin A value (3a) (3b)		Thiamin (vitamin B ₁) (4a) (4b)		Ascorbic acid (vitamin C) (5a) (5b)		Vitamin D (6a) (6b)		Riboflavin (7a) (7b)		Refer- ences (8)
		I. U.	I. U.	Mg.	Mg.	Mg.	Mg.	I. U.	I. U.	Mg.	Mg.	
Potato—Continued.												
	Malactic; Scotland; dye titration; Stored 1 month at 2°-3° C.; (from healthy plants); Stored 1 month at 2°-3° C.; (from plants in- fected with mosaic). Stored 4 months at 2°-3° C.; (from healthy plants); Stored 4 months at 2°-3° C.; (from plants in- fected with mosaic). Malactic; [England]; thiochrome method Malic; pared; Holland; thiochrome method; Cooked					18.3	21.5					241
	Netted Germ. Montana; dye titration; Cut crosswise and boiled 35 minutes at 95° C. Steamed 45 minutes. Cooked at 17½ pounds steam pressure 5-8 minutes. Baked 1 hour at 225° C. Fried in butter 20 minutes. Fried in crisco 20 minutes. Cooked, held 24 hours at 4° C., and fried in butter 10 minutes. Mashed after boiling 35 minutes Cooked, held 24 hours at 176.7° C.) Stored 6 months at 37.5-53.9° F. and 81.4-94.4 percent relative humidity. Stored, cooked 35 minutes at 95° C. 5-8 minutes. Stored, cooked at 17½ pounds steam pressure 5-8 minutes. Stored, baked 1 hour at 225° C. Stored, baked in butter 20 minutes. Stored, fried in crisco 20 minutes. Stored, cooked, held 24 hours at 4° C., and fried in butter 10 minutes. Stored, cooked, held 24 hours at 4° C., and fried in butter 10 minutes. Stored and escalloped (baked 70 minutes at 176.7° C.). Stored 6 months at 45°-65° F. and 42.2-56.9 percent relative humidity. Stored 6 months at 45°-65° F. and 42.2-56.9 percent relative humidity, cooked 35 minutes at 95° C.			8.9	7.9							210
					81							288
				48	720							
						13.3	12.8					
							11.5					
							11.5					
							17.0					
							13.7					
							19.4					
							10.8					
						8.9	19.4					
							19.6					
							16.4					
							16.2					
							10.8					
							15.0					
							15.4					
							27.2					
							76.3					
						9.9	19.5					178

New, average, 2 batches; [England]; dye titration.....	34.8	200
[England]; thiochrome method.....		210
Boiled; [England]; thiochrome method.....	1.15	209
New, cooked; average and range; [England]; dye	110-20	202
titration.....	1.8	203
Old, cooked; average and range; [England]; dye	17-10	202
titration.....		11
Boiled and pressed; [England]; hydroxyl method.....		200
Boiled and pressed; [England]; thiochrome method.....		50
In string; Germany; dye titration.....	15.4	
Fresh.....	1.6, 5	
Dried.....	1.6, 7	
Average and range; stored from October-June; Germany; dye titration.....		
October:		
Raw.....	{ 24.2	
Boiled.....	{ 21.6-23	
November:		
Raw.....	{ 13.1-25.4	
Boiled.....	{ 23.2	
February:		
Raw.....	{ 15.6-24.2	
Boiled.....	{ 15.3	
April:		
Raw.....	{ 13.9	
Boiled.....	{ 7.4-19.2	
June:		
Raw.....	{ 10.6	
Boiled.....	{ 6.4-13.8	
Raw.....	{ 11.7	
Boiled.....	{ 6.7-16.6	
Raw.....	{ 8.2	
Boiled.....	{ 5.2-12.6	
Raw.....	{ 8.9	
Boiled.....	{ 6.6-12.9	
Raw.....	{ 7.7	
Boiled.....	{ 5.5-9.3	
Holland; dye titration.....	31.1	260
Holland; dye titration.....		260
Raw.....	32.1	195
Cooked 45 minutes.....	25.9	45
Unpared; India; fluorimetric method.....		
India; dye titration.....	17.3	211
Raw.....	17.5	1
Unpared; boiled.....		

Values are coded - or unprocessed-weight basis.

⁴ Values on raw-weight basis.

Values on dry-weight basis.

Irish Cobbler, baked; Massachusetts; dye titration: Average and range, center portions.....									
								114.0 18.0 21.0 11.1 7.7 14.9 7.6 13.0	166
Average and range, median portions.....									
Average and range, epidermal portions.....									
Prickly apple	[Zuurak]; Java; dye titration.....							22.9	244
Prune	Fresh; California.....	{ 1,000 or more }							189
	Commercial samples; steamed and canned; U. S. A.; dye titration:								
	In tin containers; 2 samples:								
	Pulp, frozen; Boston market sample; spectrographic method.....				172,600				199
Dried	Boston market sample; spectrographic method.....	{ 1,400 }						10.7 2.4	82
	Pendleton; California; rate-growth method.....	{ 3,450 }							82
	Tenderloin; California; rate-growth method.....	1,560							29
	Canned; U. S. A.; dye titration.....		180						68
	Thiodrene method:							0	209
Pumpkin	Raw; bradycardia method.....		114						11
	Sliced.....								262
	Cooked; dye titration.....		270					1	
Various parts	Big Tom variety of field pumpkin; cooked; Maryland; rat-growth method.....				1,200			2.0	20
	White variety; India; dye titration.....							6.9	211
	India; dye titration.....							1.1	211
	India; dye titration:							5.1	1
	Flesh.....							10	
Rabbit	Leaves.....							10	225
	Stew.....							10	
	Stew.....							4	209
Various organs (see liver)	[Pagdon]; thiodrene method.....		33						22
	[Pagdon]; W. S. A. method.....								11
	Stewed; [England]; bradycardia method.....								

¹Values per 100 g.

²International Unit values were calculated from carotene analyses of included carotene analyses.

³Values on cooked or processed weight basis.

Vitamin values per 100 grams of edible portions of foods—Continued

Item (1)	Description of sample (2)	Vitamin A value		Thiamin (vitamin B ₁)		Ascorbic acid (vitamin C)		Vitamin D		Riboflavin		Refer- ences (8)
		I. U. (3a)	I. U. (3b)	Mg. (4a)	Mg. (4b)	Mg. (5a)	Mg. (5b)	I. U. (6a)	I. U. (6b)	Mg. (7a)	Mg. (7b)	
Radish	Sacred Globe, Washington, D. C., market; Maryland; rat-growth method.					23.1						29
	White-leaved; U. S. A.; dye titration.					27						34
	Average and range; Argentina; dye titration.					20-28						216
	England; thiochrome method.			30								209
Various parts	England; thiochrome method.			130								210
	India; dye titration.					15.0						211
	India; dye titration.					40						211
	India; fluorometric method.					25				20		291
Raspberries	Red; U. S. A.; dye titration.											21
	U. S. A.; fluorometric method.									13		126
	England; dye titration.					13						225
	Leaves.					43						1
Raspberries	Young leaves; India; dye titration.					113.8						20
	England; California rat-growth method.											20
	U. S. A.; dye titration.			118								11
	Bradysville method.			87								209
Raspberries	Black; Washington, D. C., market; California; rat-growth method.											28
	Red; Washington, D. C., market; New Jersey; rat-growth method.											29
	Red; U. S. A.; dye titration.					25						21
	Red; U. S. A.; dye titration.											28
Raspberries	Red; frozen; Boston market sample; spectrographic method.											82
	Average and range; England; dye titration.					25						202
	Fresh; average; 1 batch; England; dye titration.					21.37						200
	England; dye titration.											202
Raspberries	Made into jam.											1
	England; bradysville method.					19						229
	Average, 2 varieties, Germany; dye titration.					37.6						229

Cooked or canned; average and range, England; dye titration.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
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International Unit values were calculated from carotene analyses or included carotene analyses. Values on cooked- or processed-weight basis. Values per 100 ml. Values on raw-weight basis. Unpublished data, Bureau of Home Economics.

Vitamin values per 100 grams of edible portions of foods—Continued

Item (1)	Description of sample (2)	Vitamin A value (3a) (3b)		Thiamin (vitamin B ₁) (4a) (4b)		Ascorbic acid (vitamin C) (5a) (5b)		Vitamin D (6a) (6b)		Riboflavin (7a) (7b)	Refer- ences (8)
		I. U.	I. U.	Meg.	Meg.	Mg.	Mg.	I. U.	I. U.	Meg.	
Rice —Continued.	Brown; Maine market sample; dye titration— growth method.	Nil									43
	Brown; Washington, D. C., market sample; rat- growth method.			420							20
	Brown; Washington, D. C., market sample; rat- growth method.										(*)
	Whole grain; India; dye titration.					2.4					197
	Dry seeds, ungerminated.					2.1					
	After 44-hour germination.					2.2					
	After 44-hour germination.					3.1					193
	After 94-hour germination.			33		3.3					
	Polished; 120-hour germination.					3.5					
	Polished; 120-hour germination.										281
	White, unpolished; India; fluorometric method.										291
	White, milled and polished; India; fluorometric method.										(*)
Bran	White, polished; rat-growth method.			cs 10							11
	Bredyardia method.			2,280							11
	U. S. A.; thiochrome method.			1,900							120
	U. S. A.; rat-growth method.			2,220							(*)
	Washington, D. C., market sample; rat-growth method.			600							(*)
	Fermented rice; Japan; lumiflavin method:										240
Wine	Wine (aski)										240
	Wine (aski)										240
	Fermented sweet rice wine (aski); Japan; lumiflavin method.										240
	Cod; Greenland; dye titration.										134
	Cod; smoked; thiochrome method.										209
	Cod; canned; 1 sample.			1,900		41					103
Rec	Crab; canned; 1 sample.										6
	Rat-growth method.										1870
	Crab; canned; toe or <i>Gadus morhua</i> ; Norway; rat- growth method.										1870
	Oxidation method.										1870
	Rat-growth method.										233
	Red; canned; 1 sample; chromatographic and colorimetric method.										209
	Red; canned; 1 sample; chromatographic and colorimetric method.										233
	1 laboratory; chromatographic and colorimetric method.			30						908.4	233

Vitamin values per 100 grams of edible portions of foods—Continued

[illegible]

Back muscle; 83.4 percent moisture; Japan; tum- berlin method.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									</
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Vitamin values per 100 grams of edible portions of foods—Continued

[illegible]

Vitamin values per 100 grams of edible portions of foods—Continued

Item (1)	Description of sample (2)	Vitamin A value		Thiamin (vitamin B ₁)		Ascorbic acid (vitamin C)		Vitamin D		Riboflavin		Refer- ences (8)
		(3a)	(3b)	(4a)	(4b)	(5a)	(5b)	I. U.	I. U.	(7a)	(7b)	
Soybean	Banana, green, freshly shelled; U. S. A.; dye											24
	Jogin, green, freshly shelled; U. S. A.; dye											34
	Ironstone, grown on sandy loam soil fertilized											
	with superphosphate and muriate of potash;											
	Alabama; spectrophotometric method:											
	FPI No. 81,657	1,175										
	FPI No. 84,842	1,138										
	Blond	1,095										
	Manila	1,228										
	Manila	1,228										
	FPI No. 91,423	1,228										
	FPI No. 81,657	1,228										
	FPI No. 71,543	1,228										
	Delmona	1,228										
	FPI No. 85,590	1,638										
	Chane, 85,590	1,638										
	Chane, 85,590	1,638										
	Chane, 85,590	1,638										
	Chane, 85,590	1,638										
	FPI No. 85,590	1,638										
	FPI No. 85,590	1,638										
	FPI No. 85,590	1,638										
	FPI No. 85,590	1,638										
	FPI No. 85,590	1,638										
	FPI No. 85,590	1,638										
	FPI No. 85,590	1,638										
	FPI No. 85,590	1,638										
	FPI No. 85,590	1,638										
	FPI No. 85,590	1,638										
	FPI No. 85,590	1,638										
Mature	Green, S. A.; rat-growth method		0									26
	Bliss; dry; U. S. A.; rat-growth methods.		0									105
	Bliss; dry; U. S. A.; rat-growth methods.		50									105
	Laredo; dry; U. S. A.; rat-growth methods.		130									105
	Laredo; dry; U. S. A.; rat-growth methods.		0									105
	Mammoth yellow; dry; U. S. A.; rat-growth											105
	methods.											
	40											

240

26

105

105

105

105

105

Vitamin values per 100 grams of edible portions of foods—Continued

Item (1)	Description of sample (2)	Vitamin A value		Thiamin (vitamin B ₁)		Ascorbic acid (vitamin C)		Vitamin D		Riboflavin		Refer- ences (8)
		(3a) I. U.	(3b) I. U.	(4a) Mg.	(4b) Mg.	(5a) Mg.	(5b) Mg.	(6a) I. U.	(6b) I. U.	(7a) Mg.	(7b) Mg.	
Soybean—Con. Mature—Con.	6-9 percent moisture, etc.—Continued.											
	FPI-No. 9, 428; 1936 crop.	142.6										
	FPI-No. 8, 428; 1936 crop.	112										
	FPI-No. 84, 642; 1936 crop.	178.0										
	FPI-No. 84, 642; 1937 crop.	174.8										
	FPI-No. 168, 530; 1936 crop.	181.8										
	FPI-No. 95, 731; 1937 crop.	140.0										
	Runfield, 1936 crop.	168.3										
	FPI-No. 83, 883; 1936 crop.	168.3										
	FPI-No. 83, 883; 1937 crop.	168.3										
	Tanhol: 1937 crop.	168.3										
	Runfield, 1936 crop.	168.3										
	Rokusan: 1937 crop.	168.3										
	Runfield, 1936 crop.	168.3										
	Rokusan: 1936 crop.	168.3										
	Higan: 1937 crop.	168.3										
	Manureto: 1936 crop.	168.3										
	Manureto: 1937 crop.	168.3										
	Delata: 1936 crop.	168.3										
	Delata: 1937 crop.	168.3										
	Delata: 1938 crop.	168.3										
	Delata: 1939 crop.	168.3										
	Delata: 1940 crop.	168.3										
	Manito: 1939 crop.	168.3										
	Grown on sandy loam soil fertilized with super- phosphate and murate of potash; stored 6 months.	168.3										
	Autobac: chromatographic-spectrophotometric method.	168.3										
	FPI-No. 83, 884.	168.3										
	FPI-No. 94, 168.	168.3										
	Kura.	168.3										
	FPI-No. 99, 057; stored 6 months; U. S. A.; chro- matographic-spectrophotometric method.	168.3										

240

220

280

[illegible]

Boiled 9 minutes.....

International Unit values were
Values on raw-weight basis.

1. Introduction

Vitamin values per 100 grams of edible portions of foods—Continued

Item (1)	Description of sample (2)	Vitamin A value (3a) (3b)		Thiamin (vitamin B ₁) (4a) (4b)		Ascorbic acid (vitamin C) (5a) (5b)		Vitamin D (6a) (6b)		Riboflavin (7a) (7b)	Biotin (8)
		I. U.	I. U.	Mg.	Mg.	Mg.	Mg.	I. U.	I. U.		
Spinach—Continued.	Broad Flanders, New York; dye titration: Spring: Grown on muck soil.....										
	Autumn: Grown on upland soil.....										
	Autumn: Grown on muck soil.....										
	Autumn: Grown on upland soil.....										
	Fakine, New York; dye titration: Spring: Grown on upland soil.....										
	Autumn: Grown on muck soil.....										
	Autumn: Grown on upland soil.....										
	Poland; New York; dye titration: Spring: Grown on muck soil.....										
	Autumn: Grown on upland soil.....										
	Autumn: Grown on muck soil.....										
	Autumn: Grown on upland soil.....										
	Holland; New York; dye titration: Fresh: Grown on upland soil.....										
	Stored 3 days at 1°-3° C.....										
	Stored 7 days at 1°-3° C.....										
	Stored 17 days at 1°-3° C.....										
	Stored 3 days at 25°-30° C.....										
	Stored 17 days at 25°-30° C.....										
	King of Denmark; New York; dye titration: Spring: Grown on muck soil.....										
	Autumn: Grown on upland soil.....										
	Autumn: Grown on muck soil.....										
	Long Standing Bloomsdale; New York; dye titration: Spring: Grown on upland soil.....										
	Autumn: Grown on muck soil.....										
	Autumn: Grown on upland soil.....										
	Nobel; New York; dye titration: Spring: Grown on muck soil.....										
	Autumn: Grown on upland soil.....										

[illegible]

Values on cooked- or processed-weight basis.

Vitamin values per 100 grams of edible portions of foods—Continued

Item (1)	Description of sample (2)	Vitamin A value		Thiamin (vitamin B ₁)		Ascorbic acid (vitamin C)		Vitamin D		Riboflavin		Refer- ences (8)
		I. U.	I. U.	(3a) (3b)	(4a) (4b)	(5a) (5b)	(6a) (6b)	I. U.	I. U.	(7a) (7b)	Meg.	
Synthesis—Continued	Vitofax, inner leaves, Germany, modified dye titration											32
	Vitofax, New York, dye titration:											
	Spring:											
	Grown on muck soil					53						264
	Grown on upland soil					78						
	Autumn:					54						
	Grown on muck soil					32						216
	Grown on upland soil					32						
	Average and range, Argentina, dye titration					{ 11-47 }						82
	Boston market, spectrographic method			116,400								
	Average of range, Boston market, dye titration:			{ 25,000 }								
	April, Texas					35-38						82
	December, Texas					41						
	April, Virginia					68						
	November, Virginia					14-47						
	November, Virginia					32, 1-46, 8						
	Range, 2 batches, England, dye titration:											
	Fresh:					{ 10.0 }						320
	After cooking, liquid discarded					{ 10.0 }						
	After commercial canning, liquid discarded					{ 12.1 }						
	Liquid from cooked samples					{ 30.0-32.7 }						
	Liquid from canned samples					{ 32.1-37.4 }						
	Fresh, average and range, 4 batches, England:											
	Uncooked					80.4						200
	England: backscoria method			210		{ 32.1-18.1 }						11
	Cooked or canned, averages and range, England:											202
	dye titration					{ 7.27 }						
	Germany, dye titration:					{ 9.30 }						
	Fresh:					47.5						59
	Bleached					{ 31.8 }						
	Dried					{ 47.5 }						
	Dried					{ 4.37 }						
	Germany, dye titration:											
	Fresh, 2 days in cool storage					24						279
	After 2 days in cool storage					{ 12.0 }						
	After 2 days in cool storage					{ 4.4 }						

Vitamin values per 100 grams of edible portions of foods--Continued

Item (1)	Description of sample (2)	Vitamin A value (3a)		Thiamin (vitamin B ₁) (4a)		Ascorbic acid (vitamin C) (5a)		Vitamin D (6a)		Riboflavin (7a)	References (8)	
		I. U.	I. U.	Mcp.	Mcp.	Mcp.	Mcp.	I. U.	I. U.			
Spinach—Continued	Collected during wet, rainy season; India, dye titration: Fresh 100 g. leaves at room temperature Held 2 days at room temperature Held 8 days at room temperature Glassen fresh; India, dye titration: From garden From garden treated with farmyard manure India, dye titration: Stored for 24 hours at 3° C. Boiled; cooking water included India, dye titration Boiled; cooking water included Leaves: Japan; molasses dye titration 2 determinations on same sample, Michigan; New Jersey; dye titration: Raw; average and range, 10 lots. Steam-cooked; average and range, 10 lots. Cooked in water; average and range, 10 lots. Frozen; average and range, 10 lots. Frozen; cooked in water; average and range, 10 lots. Commercially canned; average and range, 6 Average and range, 12 autumn varieties grown on muck soil; New York; dye titration. Average and range, 12 autumn varieties grown on muck soil; New York; dye titration. Average and range, 12 autumn varieties grown on muck soil; New York; dye titration.											
						53.3	53.3				211	
						35.9	35.9				211	
						63.7	63.7				211	
						132.6	132.6				226	
						31.6	31.6				201	
						224	224			89	190	
						84.4	84.4				20	
						158.2	158.2				62	
						74.2	74.2				264	
						112.2	112.2				264	
						54.2	54.2				264	
						44.6	44.6				264	
						135.6	135.6				264	
						326.6	326.6				264	
					81.6	81.6				264		
					57.6	57.6				264		
					322.6	322.6				264		
					81.7	81.7				264		
					60	60				264		
					48.07	48.07				264		
					72.13	72.13				264		

Vitamin values per 100 grams of edible portions of foods—Continued

Item	Description of sample	Vitamin A value		Vitamin B ₁ (vitamin B ₁)	Ascorbic acid (vitamin C)	Vitamin D		Riboflavin	Refer- ences
(1)	(2)	(3a)	(3b)	(4a)	(5a)	(5b)	(6a)	(7a)	(8)
Squash—Continued Canned—Com.	Commercial sample, strained and canned; U. S. A.; rat-growth methods:								
	1933 samples	7, 100							
	1934 samples	11, 700							109
Dried	Commercial samples, strained; U. S. A.; dye titration:								
	In tin containers, 2 samples								
	In glass container, 1 sample								199
Frozen	Commercial; strained; U. S. A.; dye titration:								
	Spring 1933								
	Spring 1935								108
Various parts.	Autumn 1934								
	Commercial; dye titration								
	Sweden; fluorometric method								29
Various parts.	Dried; rat-growth method								
	Cooked, then dried	194, 000							82
	Cooked, then dried	283, 000							82
Various parts.	Average, 3 samples; U. S. A.; dye titration								
	Nobel average and range; commercial; January								82
	Virginia Navy; average and range; commercial								82
Various parts.	Sample, January-June; dye titration								
	Commercial samples; U. S. A.; rat-growth method	130, 000							82
	Raw								29
Various parts.	Average, 9 samples; U. S. A.; dye titration	14, 100							62
	Hollandia, New York; dye titration								203
	Seeds								265
Various parts.	Seeds								
	Prokky Winter; New York; dye titration								
	Garden fresh; England; dye titration								200
Various parts.	Small center leaves								
	Small outer leaves								
	Large outer leaf, same plant								
Various parts.	Stems, same plant								
	Corydons; mixed sample, same plant								

Vitamin values per 100 grams of edible portions of foods—Continued

Item (1)	Description of sample (2)	Vitamin A value		Thiamin (vitamin B ₁)		Ascorbic acid (vitamin C)		Vitamin D		Riboflavin		Refer- ences (8)
		(3a) I. U.	(3b) I. U.	(4a) Mcp.	(4b) Mcp.	(5a) Mg.	(5b) Mg.	(6a) I. U.	(6b) I. U.	(7a) Mcp.	(7b) Mcp.	
Strawberry	Brenda Gautier; average and range, 6 batches from Caj farms; England; dye titration.					{ 59.96 143.9 }						201
	Everett; fully ripe; average and range, 7 batches from 3 farms; England; dye titration.					{ 51.68 55 }						34
	Juanda; fully ripe; average and range, 19 batches from 3 farms; England; dye titration.					{ 50.83 50.83 }						201
	Juanda; range for various stages of ripening; Eng- land; dye titration.											201
	Wheat											
	Half red, half white											
	Red, ripe											
	Kilgus; Washington, D. C. market; Pennyl- vania; rat-growth method.	ca 30				{ 61.48 72.97 74.89 }						201
	Faxon; fully ripe; average and range, 5 batches from 2 farms; England; dye titration.					{ 58.53 61 }						29
	100% season; average and range, 17 batches from 3 farms; England; dye titration.					{ 44.88 44.88 }						201
	Carolina; dye titration:											201
	Fairmore					{ 51.8 50.3725.8 }						
	Fairfax					{ 47.5 44 }						
	Southland					{ 45.3 45.3 }						
	Dorset					{ 39.7 45.3 }						
	Blackmore					{ 38.4 45.3 }						
	Blakenore					{ 38.4 45.3 }						
	Klondike					{ 33.0 45.3 }						
	Missionary					{ 36.2 45.3 }						
						{ 29.4 45.3 }						228

[illegible]

Values on raw-weight basis.

Values on cooked- or processed-weight basis.

Vitamin values per 100 grams of edible portions of foods—Continued

Item (1)	Description of sample (2)	Vitamin A value (3a) (3b)		Thiamin (vitamin B ₁) (4a) (4b)	Ascorbic acid (vitamin C) (5a) (5b)		Vitamin D (6a) (6b)	Riboflavin (7a) (7b)	Refer- ences (8)
Tomato—Can Red—Continued.	Bonny; average and range, 3 samples; Massachu- setts; dye titration.	I. U.	I. U.	Meg.	Mg.	Mg.	I. U.	Meg.	173
	Hard green.				16-25 22-32				
	Half ripe.				22-34 20-27				
	Fully ripe.				28-31				40
	Belmont; improved; average and range, 6 samples; Massachusetts; dye titration.				9.8				
	Best of All; average and range, 6 samples; Massa- chusetts; dye titration.				24				
	Bison; grown in greenhouse, freshly picked; Minnesota; dye titration.				18-20				173
	Bonny; grown in greenhouse, freshly picked; Minnesota; dye titration.				20-24				
	Bonny Best; average and range, 6 samples; Massa- chusetts; dye titration.				25-34				
	Bonny Best; average and range, 8 strains; Massa- chusetts; dye titration.								40
	Bonny Best; freshly picked; Minnesota; dye titration; in field.				22.4				
	Grown in greenhouse.				16.9				
	Bonny Best; grown in greenhouse, freshly picked; Minnesota; dye titration.				11.0				40
	Bonny Best; grown into pulp for sampling; Vir- ginia; dye titration.								
	Mature; average and range.				17-22				
Tomato—Can Red—Continued.	Home-canned; processed 30 minutes cold in glass, average and range.				17-22				173
	Fresh; average and range.				17-22				
	Home-canned; processed 45 minutes cold in glass, average and range.				17-22				
	Home-canned; processed 60 minutes cold in glass, average.				17-22				173
	Fresh; average.				17-22				

Early Stone, average and range, 6 samples; Massachusetts; dye titration.	{ 33 27-41 }					173
Farthest North; freshly picked; Minnesota; dye titration.	{ 17.1 }					49
Globin; average and range, 3 strains; Massachusetts; dye titration.	{ 26 24-27 }					173
Globe; freshly picked; Minnesota; dye titration.	{ 22.2 22 25 }					49
Greater Baltimore; average and range, 6 samples; Massachusetts; dye titration.	{ 21-25 30 }					173
Greenhouse; stored at room temperature; average and range, 4 samples; Massachusetts; dye titration; 2-40 hours after picking.	{ 44 41-50 }					
Stored 48 hours.						173
Stored 96 hours.						
Stored 168 hours.						
Greenhouse; freshly picked; Minnesota; dye titration.	{ 31 22-37 }					173
Globin; freshly picked; Minnesota; dye titration.	{ 23.1 16-33 }					49
Greater Baltimore; average and range, 6 samples; Massachusetts; dye titration.	{ 23 15-26.2 }					173
Greater Baltimore; average and range, 6 samples; Massachusetts; dye titration.	{ 15-26.2 18.0 }					49
Gull Strit; freshly picked; Minnesota; dye titration.	{ 39 30-47 }					173
Harkness; freshly picked; Minnesota; dye titration.	{ 38 18-52 }					173
Local Forcing; average and range, 6 samples; Massachusetts; dye titration.	{ 15-22 18-29 }					173
Indian; Baltimore; average and range, 6 samples; Massachusetts; dye titration.	{ 15-22 18-43 }					173
Italian Red Pear; average and range, 6 samples; Massachusetts; dye titration.						

Vitamin values per 100 grams of edible portions of foods—Continued

[illegible]

Vitamin values per 100 grams of edible portions of foods—Continued

[illegible]

[illegible]

124-26; grown in greenhouse, freshly picked; Minnesota; dye titration.	10.7					49
128-30; freshly picked; Minnesota; dye titration.	22.7					49
132-34; grown in greenhouse, freshly picked; Minnesota; dye titration.	9.9					49
136-38; grown in greenhouse, freshly picked; Minnesota; dye titration.	10.1					49
140-42; grown in greenhouse, freshly picked; Minnesota; dye titration.	18.8					49
144-46; grown in greenhouse, freshly picked; Minnesota; dye titration.	14.4					49
148-50; grown in greenhouse, freshly picked; Minnesota; dye titration.	10.4					49
152-54; grown in greenhouse, freshly picked; Minnesota; dye titration.	15.7					49
156-58; grown in greenhouse, freshly picked; Minnesota; dye titration.	21.1					49
160-62; grown in greenhouse, freshly picked; Minnesota; dye titration.	28					216
Average and range; Argentina; dye titration.	20-35					200
Green; [England]; biochrome method.	24					208
Ripe; [England]; biochrome method.	12-12					202
Average and range; England; dye titration.	24					11
Pulp; England; biochrome method.	21.6					29
Pulp; dye titration.	26.8					29
France; biochrome and luminol methods, respectively.	9.8-17.9					29
France; dye titration.	26.4					83
Fresh.	24.7					229
Canned in tin.	18.2					94
Fresh.	24.7					195
Dried.	18.2					195
Ripe; India; fluorimetric method.	236					195
Greece and fresh; India; fluorimetric method.	168					211
India; biochrome method.	41					211
India; dye titration.	31.3					204
Juice; India; dye titration.	23.9					67
Rumana; dye titration.	16.6					86
Sweden; biochrome method.	5.0					264
Fresh; Sweden; fluorimetric method.	17.9					
Average and range; 8 samples; Texas; dye titration.	10.6-28.2					
Average and range; 5 varieties; U. S. A.; dye titration.	22					
Values on cooked, or processed weight basis.	16-31					
Values per 100 ml.						
Values on raw-weight basis.						

Vitamin values per 100 grams of edible portions of foods—Continued

Item (1)	Description of sample (2)	Vitamin A value (3a) (3b)	Thiamin (vitamin B ₁) (4a) (4b)	Ascorbic acid (vitamin C) (5a) (5b)	Vitamin D (6a) (6b)	Riboflavin (7a) (7b)	Refer- ences (8)
Tomato—Con. Red—Continued. Canned—Con.	Commercially prepared juice; container completely filled; U. S. A.; dye titration:						
	1 day after bottling.....	I. U.	I. U.		I. U.		
	1 day after canning.....						
	20 days after bottling.....						
	20 days after canning.....						
	Commercially prepared juice; U. S. A.; dye titration.						
	Bottle completely filled, by hand:						
	Fresh juice.....						
	1 day after bottling.....						
	20 days after bottling.....						
Various parts	Head space 2.6 cm.:.....						
	1 day after bottling.....						
	40 days after bottling.....						
	200 days after bottling.....						
	Head space 1.1 cm.:.....						
	1 day after bottling.....						
	40 days after bottling.....						
	200 days after bottling.....						
	Head space 1.1 cm.:.....						
	1 day after bottling.....						
Yellow	Juice; commercial; U. S. A.; dye titration:						
	In tin container; average and range, 6 samples.....						
	In glass containers; average and range, 5 samples.....						
	Juice; average and range, 30 commercial samples; U. S. A.; dye titration.....						
	Commercial; U. S. A.; dye titration.....						
	Commercial; U. S. A.; dye titration.....						
	Juice; commercial; New York grade C; dye titration.....						
	Juice; commercial; U. S. A.; dye titration.....						
	Juice; commercial; U. S. A.; dye titration.....						
	Juice; commercial; U. S. A.; dye titration.....						

[illegible]

International Unit values were calculated from carotene analyses or included carotene analyses.

Values on cooked- or processed-weight basis.

Values per 100 ml.

Vinegar.....	Edible, Japan; luminflavin method.....					240
Walnut.....	Persian; (English); U. S. A.; rat-growth method.....	ca 40	342			29
	do dye titration.....			20		28
	[English]; bromocresol method.....		450			4
Water castileep.....	Red; China; dye titration.....			17.1		11
Water cross.....	Average and range, England; dye titration.....			{ 61		41
	England; bromocresol method.....			{ 58-72		202
	do dye titration.....		180	187.5		11
	Market sample; U. S. A.; dye titration.....			60.0		35
	U. S. A.; dye titration.....			54		24
Watermelon.....	Chloro; Texas; dye titration.....			8.6		85
	do do do.....			9.5		85
	Cuban Queen; average and range, 5 samples;.....			6.5		85
	Texas; dye titration.....			{ 5.1-7.8		85
	Duke Queen (yellow meat); Texas; dye titration.....			4.5		85
	do do do.....			4.6		85
	Hubert Honey; Texas; dye titration.....			4.8		85
	do do do.....			7.0		85
	Iron; Texas; dye titration.....			6.4		85
	(Yellow meat).....			7.5		85
	(Red meat).....			5.8		85
	Pearl; average and range, 7 samples; Texas; dye.....			{ 3.7-6.9		85
	titration.....			{ 3.7-6.9		85
	Stone Mountain; average and range, 4 samples;.....			{ 2.3-3.7		85
	Texas; dye titration.....			{ 2.3-3.7		85
	do do do.....			{ 2.3-3.7		85
	Texas; dye titration.....			{ 2.3-3.7		85
	Small; China; dye titration.....			7.12		85
	China; dye titration.....			5.73		41
	India; dye titration.....	ca 500	69	< 1.0		210
	Center portion of fresh ripe fruit; Washington.....					1
	market; U. S. A.; rat-growth method.....			5		29
	Freshly picked, western station; dye titration.....			14		123
	do do do.....			11.01		123
	Pickled; U. S. A.; dye titration.....			11.31		44
	June.....			10.9		44
Rind.....	Preserved; U. S. A.; dye titration.....			10.9		44
	Flesh.....			11.0		44

: Values on cooked- or pressed-weight basis.

Values per 100 ml.

4 Values on raw-weight basis.

This figure may be significant

^a Values calculated from authors

Vitamin values per 100 grams of edible portions of foods--Continued

[illegible]

[illegible]

[†] Values on cooked- or processed-weight basis.

Vitamin values per 100 grams of edible portions of foods—Continued

Item (1)	Description of sample (2)	Vitamin A value (3a) (3b)	Thiamin (vitamin B ₁) (4a) (4b)	Ascorbic acid (vitamin C) (5a) (5b)	Vitamin D (6a) (6b)	Riboflavin (7a) (7b)	Refer- ences (8)
Wheat—Continued. Germ—Con.	Average and range, 9 samples: Bradycardia method	I. U.	Mcp. 3,346 3,346 2,146 2,146 1,846 2,846	Mcp.	I. U.	Mcp.	208
	Thiochrome method		2,846				
	Average and range, 8 samples:		2,846				
	Bradycardia method		2,846				208
	Thiochrome method		2,846				
	Average and range, 6 samples:		2,846				
	Bradycardia method		2,846				208
	Thiochrome method		2,846				
	Average and range, 5 samples:		2,846				
	Bradycardia method		2,846				208
	Thiochrome method		2,846				
	Average and range, 5 samples:		2,846				
	Bradycardia method		2,846				11
	Thiochrome method		2,846				
	Crude; average and range, 5 samples; bradycardia method.		2,846				
	Average and range, 4 samples; bradycardia method.		2,846				112
	Average and range, 4 proprietary samples; bradycardia method.		2,846				
	Range, 3 samples; U. S. A.; thiochrome method.		2,846				
	Average and range, 3 samples; thiochrome method.		2,846				120
			2,846				
			2,846				

Yonman, II, autumn sowing; England; thiochrome method.	366	30
Normal manuring	366	30
do	366	30
Finland manuring	343	30
Yonman-Lincolnshire, 1939 crop; England; thiochrome method.	252	30
do	252	30
Brume method	436	30
Yonman, autumn sowing; England; thiochrome method.		
202 (478); autumn sowing; England; thiochrome method.		
Normal manuring	312	30
Intensively manured	351	30
Finland manuring	540	16
Baia Buzare, Argentina; gray-earle method	720	30
do	720	30
do	430	30
Roads Plate; Argentina; brulycard method.	690	16
do	690	30
Roads Plate, Argentina; thiochrome method.	374	30
do	374	30
La Plaza, Argentina; thiochrome method.	430	30
do	999	30
Durum; thiochrome method.	430	30
Durum; thiochrome method.	443	30
Durum, grade 2, C. W. Amber; thiochrome method	448	30
Durum, mber grade 3; thiochrome method.	912	30
Durum, N. W. Amber; thiochrome method.	340	30
Durum Mendum; spring; obtained from Minnesota; thiochrome method.	710	235
Durum, Red; 1.5 percent protein; obtained from Illinois; fermentation method.	630	235
Karechi; India; thiochrome method.	381	30
do	381	30
do	430	30
do	430	30
Manitoba, Canada; thiochrome method.	550	30
Manitoba, grade 1, Canada; thiochrome method.	384	30
Manitoba, grade 2, Canada; thiochrome method.	375	30
Manitoba, grade 3, Canada; thiochrome method.	162	30
Manitoba, grade 4, Canada; thiochrome method.	166	30
do	354	30
Red type; 1939 crop; England; thiochrome method.	351	30
Red (Native Red A); Holland; thiochrome method.	430	30
Hard red spring; Montana; rat-growth method.		
Ground	540	
Cracked, soaked in double boiler	1,495	
Cracked, soaked in triple boiler	1,465	

⁴ Values on raw-weight basis.
⁵ Wheats under this category are classified according to varieties.
⁶ Wheats under this category are grouped by class or type and place of production.

Vitamin values per 100 grams of edible portions of foods—Continued

Item (1)	Description of sample (2)	Vitamin A value (3a) (3b)		Thiamin (vitamin B ₁) (4a) (4b)		Ascorbic acid (vitamin C) (5a) (5b)		Vitamin D (6a) (6b)		Riboflavin (7a) (7b)		Refer- ences (8)
		I. U.	I. U.	Mg.	Mg.	Mg.	Mg.	I. U.	I. U.	Mg.	Mg.	
Wheat—Continued. Whole grain II a— Continued.	Hard spring, U. S. A.; rat-growth method.			625								28
	Moniana Spring; obtained from Illinois; fer- mentation method.			589								235
	Northern Spring; grade 1 dark; thiochrome method.			180								30
	Spring, 13.5 percent protein; obtained from Illinois;			690								235
	White; fermentation method.			330								30
	Triticum dicoccum; England; thiochrome method.			444								30
	T. durum; France; thiochrome method.			240								30
	T. durum; England; thiochrome method.			240								30
	T. monoccum; Russia; thiochrome method.			351								30
	T. polanicum; Egypt; thiochrome method.			540								30
	T. polanicum; Russia; thiochrome method.			399								30
	T. spelta; England; thiochrome method.			276								30
	T. spelta; France; thiochrome method.			324								30
	T. vulgare; England; thiochrome method.			354								30
	White; (native white); Holland; thiochrome method.			380								258
	White; 1 Hard White; 13.5 percent protein; obtained from Illinois; fermentation method.			610								235
	Soft White; Pacific; thiochrome method.			441								30
	White; 1919 crop; England; thiochrome method.			351								30
	White; 14.4 percent protein; obtained from Illi- nois; fermentation method.			610								235
	White; obtained from Illinois; fermentation method.			610								235
	Dark Hard Winter; thiochrome method.			402								30
	White; 14.4 percent protein; obtained from Illinois; fermentation method.			670								235
	No. 1 Hard Winter; 14.5 percent protein; obtained from Illinois; fermentation method.			690								235
	Minnesota Winter; 11.6 percent protein; obtained from Illinois; fermentation method.			590								235
	Minnesota Winter; 13.5 percent protein; obtained from Illinois; fermentation method.			600								235
	Minnesota Winter; 14.5 percent protein; obtained from Illinois; fermentation method.			600								235
	Soft Winter; U. S. A.; rat-growth method.			354								28
	Soft Winter; U. S. A.; rat-growth method.			540								15
	Australia; barley growth method.			770								15

[illegible]

^a Values per 100 ml.
^b Unpublished data from Charles N. Frey, The Fischmann Laboratories, New York.
^c Data supplied by K. L. Carwright, Alouster-Biosci 2 Laboratories, St. Louis.
^d Data supplied by K. L. Carwright, Alouster-Biosci 2 Laboratories, St. Louis.
^e Data supplied by K. L. Carwright, Alouster-Biosci 2 Laboratories, St. Louis.
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^x Data supplied by K. L. Carwright, Alouster-Biosci 2 Laboratories, St. Louis.
^y Data supplied by K. L. Carwright, Alouster-Biosci 2 Laboratories, St. Louis.
^z Data supplied by K. L. Carwright, Alouster-Biosci 2 Laboratories, St. Louis.

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repectively.
Data supplied by K. I. Cartwright, Anheuser-Busch Laboratories, St. Louis.

Vitamin values per 100 grams of edible portions of foods--Continued

Item (1)	Description of sample (2)	Vitamin A value		Thiamin (vitamin B ₁)		Ascorbic acid (vitamin C)		Vitamin D		Riboflavin		Refer- ences (8)
		(3a)	(3b)	(4a)	(4b)	(5a)	(5b)	(6a)	(6b)	(7a)	(7b)	
Yeast--Continued. Brewers--Con.	Primary, nondiluted, 4-5 percent moisture; Missouri.	I. U.	I. U.	Meg.	Meg.	Mg.	Mg.	I. U.	I. U.	Mg.	Mg.	(1)
	Primary, debittered, 3-5 percent moisture; Missouri.			135-165						35-45		(1)
	Primary, for pharmaceutical uses, 3-5 percent moisture; Missouri.			135-165						40-50		(1)
	Primary, for fortification and flavoring of foods, 3-5 percent moisture; Missouri.			180						70-80		(1)
	Primary, high potency, 3-5 percent moisture; Missouri.			190-180						60-75		(1)
	Primary, range, 8 samples; U. S. A.; light absorption method; 3 samples; U. S. A.			990-690						70-80		(1)
	Residual range, 5 samples; U. S. A.; light absorption method.									2,420		226
	Sample 1:									7,820		
	Microbiological method, 2 laboratories.									4,770		(1)
	Fluorophotometric method, 2 laboratories									4,635		
Yeast--Continued. Brewers--Con.	Residual range, 5 samples; U. S. A.; light absorption method.									4,750		226
	Sample 2:									4,140		
	Microbiological method, 2 laboratories.									2,640		(1)
	Fluorophotometric method, 2 laboratories.									2,538		
	Residual range, 5 samples; U. S. A.; light absorption method.									2,450		226
	Sample 3:									2,446		
	Microbiological method, 2 laboratories.									2,328		(1)
	Fluorophotometric method, 2 laboratories.									2,210		
	Residual range, 5 samples; U. S. A.; light absorption method.									2,450		226
	Sample 4:									2,384		
Yeast--Continued. Brewers--Con.	Commercial frozen, Boston market sample; spectrographic method.			1,460						5,030		82

¹ International Unit values were calculated from carotene analyses or included carotene analyses.

² Data supplied by K. L. Cartwright, Ames Research Laboratory, Ames, Iowa. ³ Data supplied by K. L. Cartwright, Ames Research Laboratory, Ames, Iowa. ⁴ Data supplied by K. L. Cartwright, Ames Research Laboratory, Ames, Iowa. ⁵ Data supplied by K. L. Cartwright, Ames Research Laboratory, Ames, Iowa. ⁶ Data supplied by K. L. Cartwright, Ames Research Laboratory, Ames, Iowa. ⁷ Data supplied by K. L. Cartwright, Ames Research Laboratory, Ames, Iowa. ⁸ Data supplied by K. L. Cartwright, Ames Research Laboratory, Ames, Iowa.

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